



For equipment
storage only.
Not to be
occupied.

STRUCTURAL DESIGN

ENCLOSED BUILDING

**MAXIMUM 30'-0" WIDE X 20'- 0" EAVE HEIGHT-
BOX EAVE FRAME AND BOW FRAME**

**20 January 2022
Revision 0
M&A Project No. 21263S**

Prepared for:

**Five Star Metal Buildings, LLC
P.O. Box 1186
Toast, NC 27049**

Prepared by:

**Moore and Associates Engineering and Consulting, Inc.
1009 East Avenue
North Augusta, SC 29841**

**401 S. Main Street, Suite 200
Mt. Airy, NC 27030**



<p align="center">MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.</p>		<p>DRAWN BY: JG</p>		<p align="center">FIVE STAR METAL STRUCTURES, LLC P.O. BOX 1186 TOAST, NC 27049 30'-0"x20'-0" ENCLOSED STRUCTURE</p>		
		<p>CHECKED BY: PDH</p>				
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		<p>CLIENT: FIVE STAR</p>		<p>SHT. 1</p>	<p>DWG. NO: SK-3</p>	<p>REV.: 0</p>

DRAWING INDEX

SHEET 1	PE SEAL COVER SHEET
SHEET 2	DRAWING INDEX
SHEET 3	INSTALLATION NOTES AND SPECIFICATIONS
SHEET 3A	LIST OF APPLICABLE BUILDING CODES
SHEET 4	TYPICAL SIDE AND END ELEVATIONS
SHEET 5	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE RAFTER)
SHEET 5A	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE RAFTER)
SHEET 5B	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOX EAVE RAFTER)
SHEET 6	COLUMN CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 6A	COLUMN CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 6B	COLUMN CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 6C	COLUMN CONNECTION DETAILS (BOX EAVE RAFTER)
SHEET 7	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE RAFTER)
SHEET 7A	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE RAFTER)
SHEET 7B	TYPICAL RAFTER/COLUMN FRAME AND SIDE FRAMING SECTION (BOW EAVE RAFTER)
SHEET 8	COLUMN CONNECTION DETAILS (BOW EAVE RAFTER)
SHEET 8A	COLUMN CONNECTION DETAILS (BOW EAVE RAFTER)
SHEET 8B	COLUMN CONNECTION DETAILS (BOW EAVE RAFTER)
SHEET 8C	COLUMN CONNECTION DETAILS (BOW EAVE RAFTER)
SHEET 9	BASE RAIL ANCHORAGE OPTIONS
SHEET 9A	BASE RAIL ANCHORAGE OPTIONS
SHEET 10	TYPICAL END WALL AND SIDE WALL FRAMING SECTIONS (BOX EAVE RAFTER)
SHEET 11	TYPICAL END WALL AND SIDE WALL FRAMING SECTIONS (BOW EAVE RAFTER)
SHEET 12	CONNECTION DETAILS
SHEET 13	CONNECTION DETAILS
SHEET 14	CONNECTION DETAILS
SHEET 15	CONNECTION DETAILS
SHEET 16	LEAN-TO OPTIONS (BOX EAVE RAFTER)
SHEET 16A	LEAN-TO OPTIONS (BOX EAVE RAFTER)
SHEET 16B	LEAN-TO OPTIONS (BOX EAVE RAFTER)
SHEET 17	LEAN-TO OPTIONS (BOW EAVE RAFTER)
SHEET 17A	LEAN-TO OPTIONS (BOW EAVE RAFTER)
SHEET 18	VERTICAL ROOF/SIDING OPTION END AND SIDE ELEVATION AND SECTION (BOX EAVE RAFTER)
SHEET 19	SIDE WALL AND END WALL HEADER OPTIONS

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P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE**

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

SHT. 2

DWG. NO: SK-3

REV: 0

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INSTALLATION NOTES AND SPECIFICATIONS

1. DESIGN IS FOR MAXIMUM 30'-0" WIDE x 20'-0" EAVE HEIGHT ENCLOSED STRUCTURES.
2. DESIGN WAS DONE IN ACCORDANCE WITH ALL APPLICABLE BUILDING CODES LISTED ON SHEET 3A.
3. DESIGN LOADS ARE AS FOLLOWS:
 - A) ROOF DEAD LOAD:
 - SELF-WEIGHT = 1.5 PSF
 - MEP = 10 PSF
 - COLLATERAL = 0 PSF
 - B) ROOF LIVE LOAD = 20 PSF
 - C) FLOOR LIVE LOAD = 100 PSF (4" CONCRETE SLAB-ON-GRADE)
 - D) GROUND SNOW LOAD = 40 PSF
 - = 30 PSF WITH U-CHANNEL PEAK BRACE (W ≤ 24'-0" (RISK CATEGORY I ONLY))
 - (NOTE: UNBALANCED LOADING DUE TO SNOW DRIFTING FROM AN ADJACENT TALLER STRUCTURE HAS NOT BEEN EVALUATED).
4. 3-SECOND GUST ULTIMATE WIND SPEED (V_{ULT}) ≤ 140 MPH (NOMINAL WIND SPEED ≤ 108 MPH).
5. MAXIMUM RAFTER/COLUMN AND END COLUMN SPACING = 4.0 FEET (UNLESS NOTED OTHERWISE).
6. ENDWALL COLUMNS (COLUMNS) AND SIDE WALL COLUMNS ARE EQUIVALENT IN SIZE AND SPACING (UNLESS NOTED OTHERWISE).
7. RISK CATEGORY I/II (RISK CATEGORY I NOT FOR HUMAN HABITATION).
8. WIND EXPOSURE CATEGORY B/C.
9. STRUCTURAL ANALYSIS/DESIGN IS BASED ON TS MEETING THE REQUIREMENTS OF ASTM A653 GRADE 50 WITH MINIMUM YIELD STRENGTH (FY) OF 54 KSI AND GALVANIZING MEETING THE REQUIREMENTS OF G60.
10. SPECIFICATIONS APPLICABLE TO 26 GAUGE OR 29 GAUGE METAL PANELS FASTENED DIRECTLY TO 2 1/2" x 2 1/2" - 14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE). 2 1/4" x 2 1/4" - 12 GAUGE TS MAY BE USED AS OPTIONAL FRAMING MEMBERS.
11. CONNECTOR SLEEVES ARE MINIMUM 6" LONG, 2 1/4"x2 1/4"-14 GAUGE TUBE STEEL (TS) FRAMING MEMBERS (UNLESS NOTED OTHERWISE).
12. AVERAGE PANEL FASTENER SPACING ON-CENTERS = 6 INCHES.
13. FASTENERS CONSIST OF #12-14x3/4" SELF-DRILLING FASTENER (SDF), USE CONTROL SEAL WASHER WITH EXTERIOR FASTENERS. SPECIFICATIONS APPLICABLE ONLY FOR MEAN ROOF HEIGHT OF 16 FEET OR LESS, AND ROOF SLOPES OF 14° (3:12 PITCH) OR LESS SPACING REQUIREMENTS FOR OTHER ROOF HEIGHTS AND/OR SLOPES MAY VARY. ROOF SLOPES LESS THAN 3:12 REQUIRE USE OF JOINT SEALANT.
14. GROUND ANCHORS SHALL BE INSTALLED THROUGH BASE RAIL AT OR WITHIN 6" OF EVERY COLUMN.
15. STANDARD GROUND ANCHORS (SOIL NAILS) CONSIST OF #4 REBAR W/ WELDED NUT x 36" LONG AND MAY BE USED IN SUITABLE SOILS. OPTIONAL ANCHORAGE MAY BE USED IN SUITABLE SOILS AND MUST BE USED IN UNSUITABLE SOILS AS NOTED.
16. WIND FORCES GOVERN OVER SEISMIC FORCES. SEISMIC PARAMETERS ANALYZED ARE:
 - SOIL SITE CLASS = D
 - RISK CATEGORY I/II
 - R = 3.25 $I_E = 1.0$
 - $S_{DS} = 2.625 g$ $V = C_s W$
 - $S_{D1} = 2.13 g$
17. MAXIMUM THRESHOLD HEIGHT IS 1/2" FOR PERSONNEL DOORS UTILIZED AS MEANS OF EGRESS (RISK CATEGORY II ONLY).
18. CONTRACTOR TO PROVIDE ADEQUATE BRACING FOR STRUCTURE SO THAT IT WILL BE STABLE DURING ALL STAGES OF CONSTRUCTION. THE STRUCTURE AND FOUNDATION ARE DESIGNED FOR A COMPLETED CONDITION ONLY AND, THEREFORE, REQUIRE ADDITIONAL SUPPORT TO MAINTAIN STABILITY BEFORE COMPLETION.

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CHECKED BY: PDH

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CLIENT: FIVE STAR

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P.O. BOX 1186
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SHT. 3

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LIST OF APPLICABLE BUILDING CODES

2018 INTERNATIONAL BUILDING CODE (IBC 2018)

2015 INTERNATIONAL BUILDING CODE (IBC 2015)

2012 INTERNATIONAL BUILDING CODE (IBC 2012)

BUILDING CODE 2015 OF ALABAMA
(ADOPTS THE IBC 2015 WITHOUT AMENDMENTS)

GEORGIA STATE MINIMUM STANDARD BUILDING CODE
(ADOPTS THE IBC 2018 WITH AMENDMENTS)

2018 KENTUCKY BUILDING CODE
(ADOPTS THE IBC 2015 WITH AMENDMENTS)

2018 NORTH CAROLINA BUILDING CODE
(ADOPTS THE IBC 2015 WITH AMENDMENTS)

OHIO BUILDING CODE 2017
(ADOPTS THE IBC 2015 WITH AMENDMENTS)

BUILDING CODE 2015 OF PENNSYLVANIA
(ADOPTS THE IBC 2015 WITH AMENDMENTS)
2018 PHILADELPHIA BUILDING CODE
(ADOPTS THE IBC 2018 WITH AMENDMENTS)

2018 SOUTH CAROLINA BUILDING CODE
(ADOPTS THE IBC 2018 WITH AMENDMENTS)

BUILDING CODE 2012 OF TENNESSEE
(ADOPTS THE IBC 2012 WITH AMENDMENTS)

2018 VIRGINIA CONSTRUCTION CODE
(ADOPTS THE IBC 2018 WITH AMENDMENTS)

BUILDING CODE 2015 OF WEST VIRGINIA
(ADOPTS THE IBC 2015 WITH AMENDMENTS)

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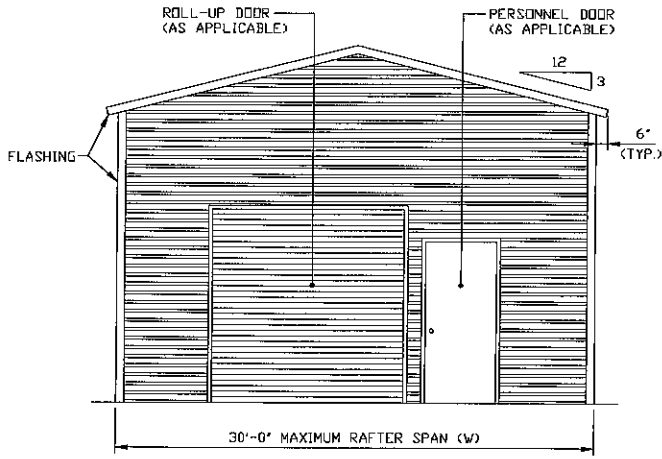
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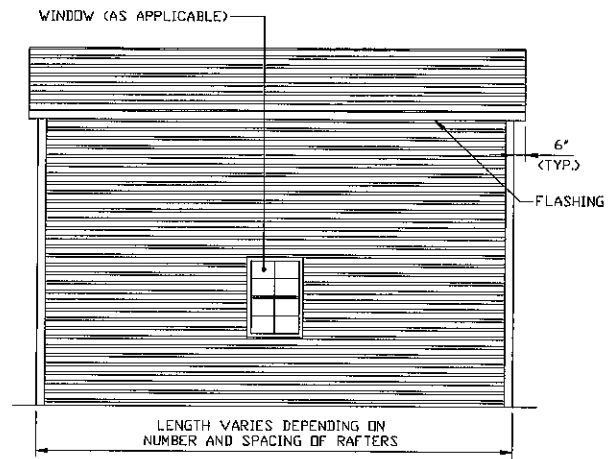
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BOX EAVE FRAME RAFTER STRUCTURE



TYPICAL END ELEVATION

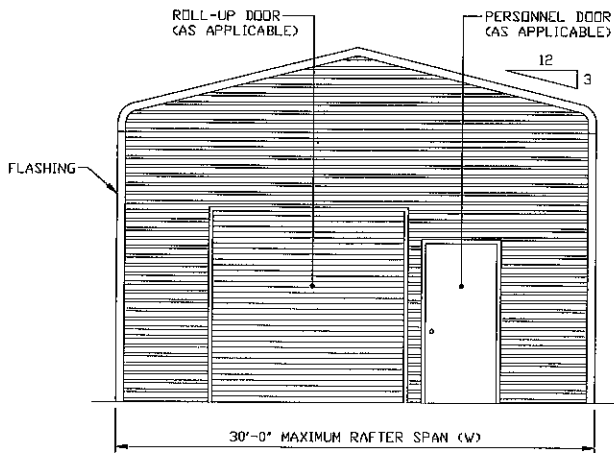
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TYPICAL SIDE ELEVATION

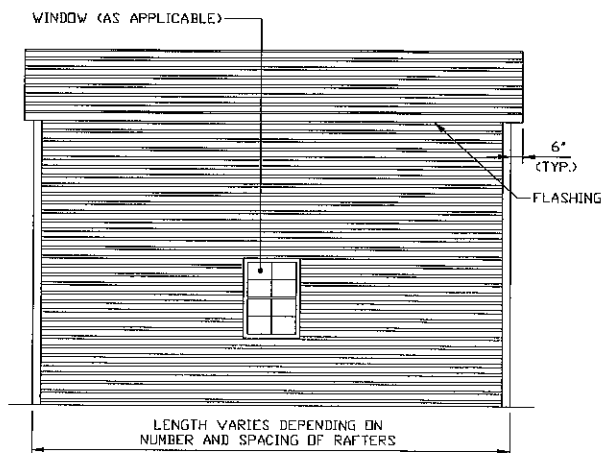
SCALE: NTS

BOW EAVE FRAME RAFTER STRUCTURE



TYPICAL END ELEVATION

SCALE: NTS



TYPICAL SIDE ELEVATION

SCALE: NTS

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SHT. 4

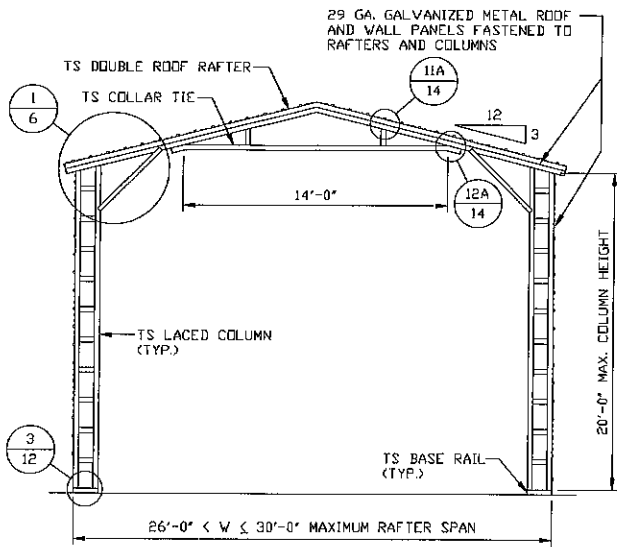
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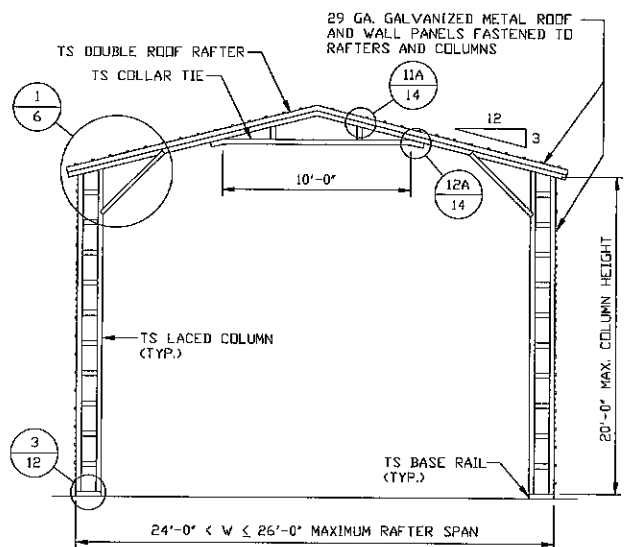
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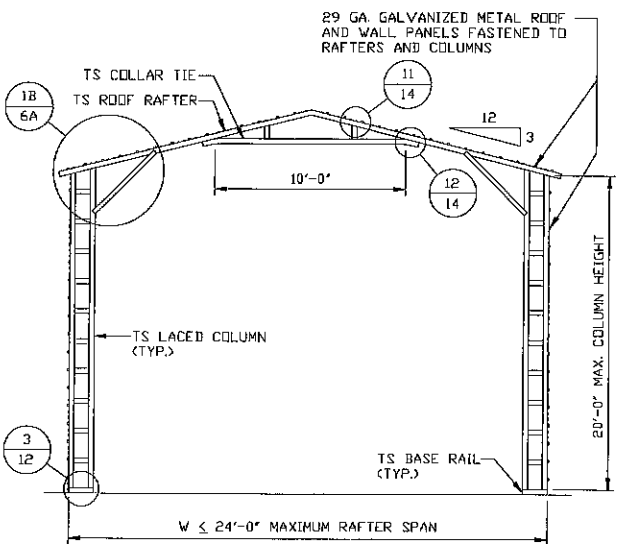
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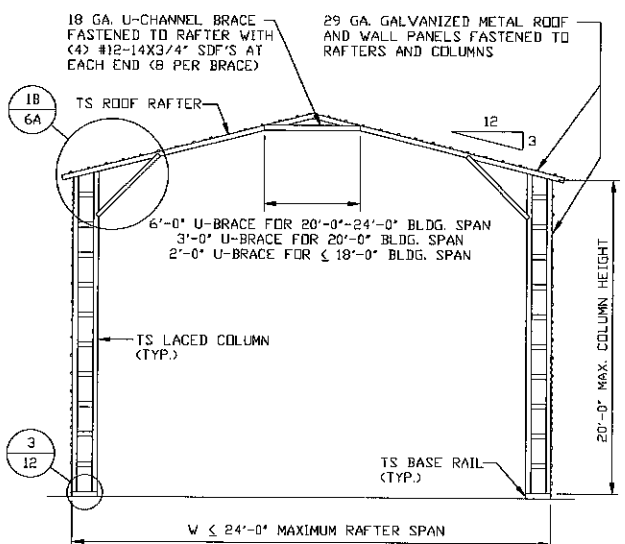
TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



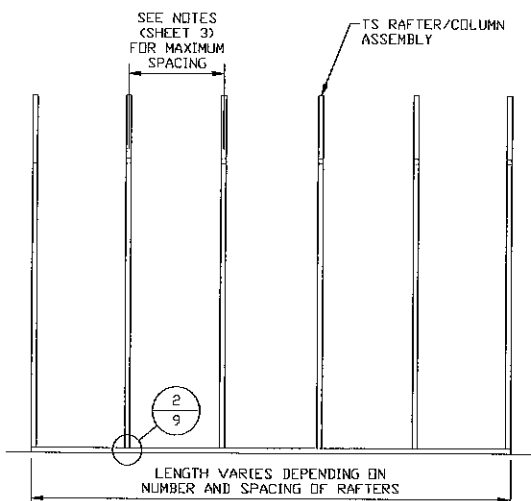
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TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAMING SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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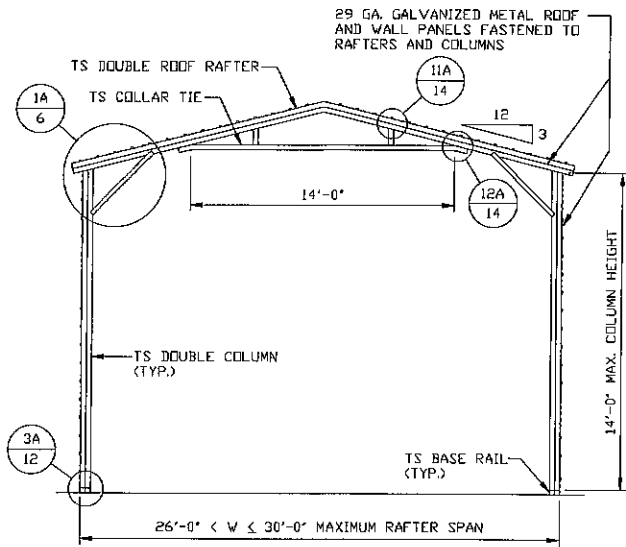
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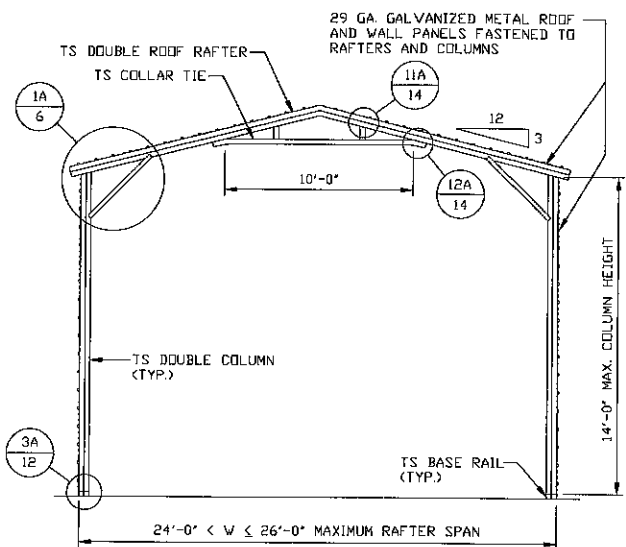
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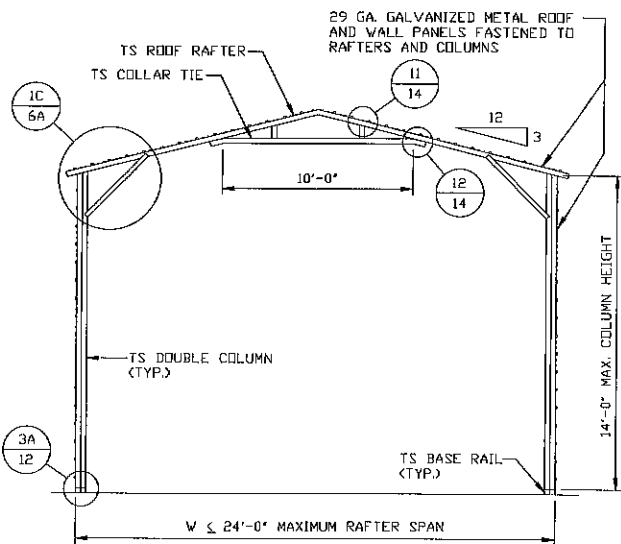
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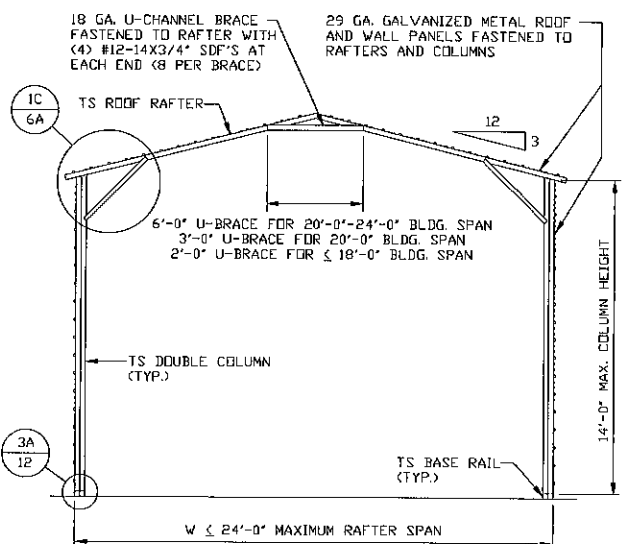
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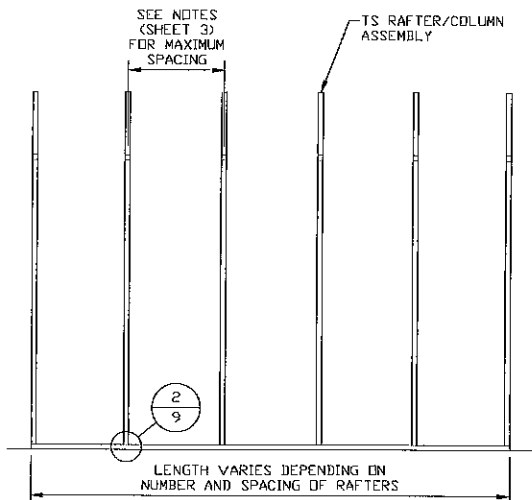
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TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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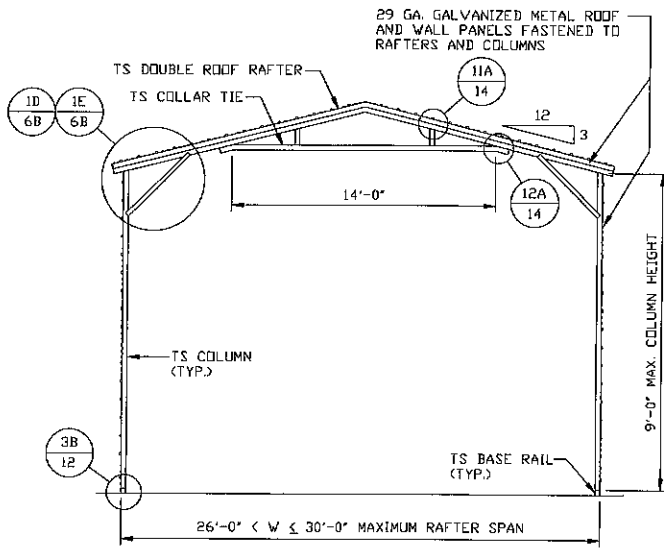
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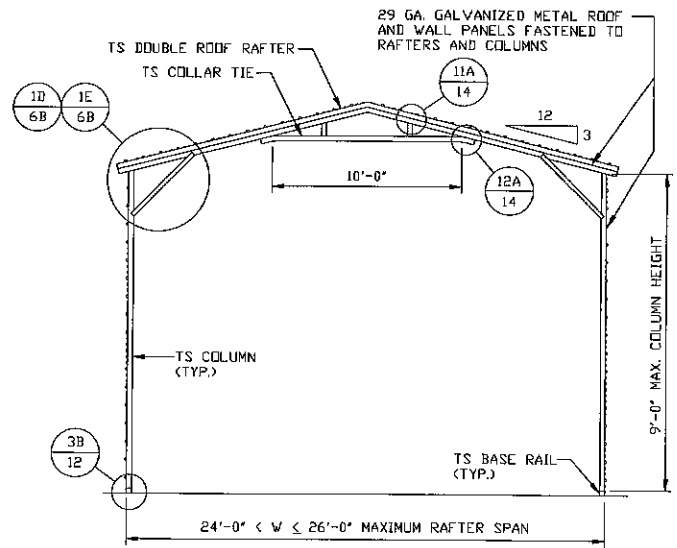
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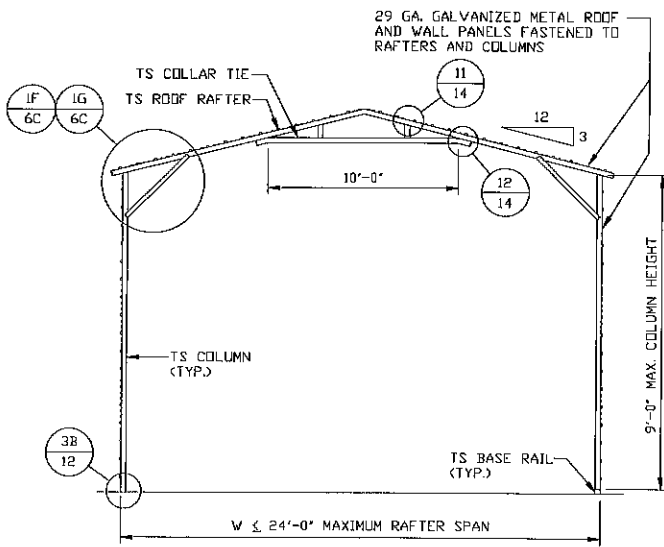
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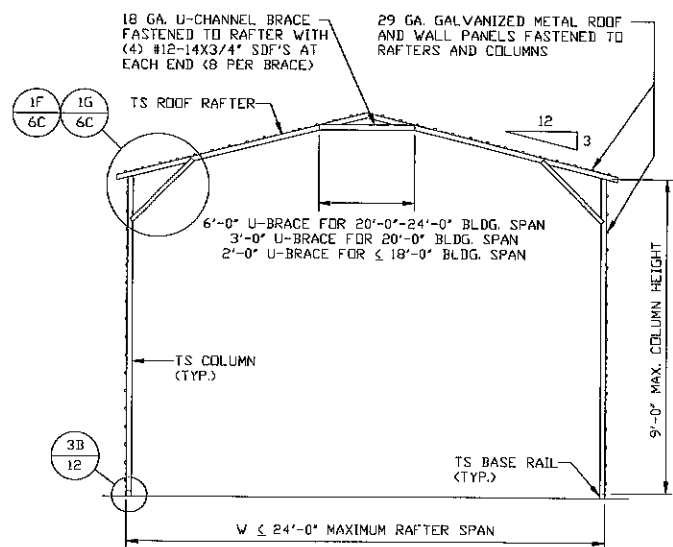
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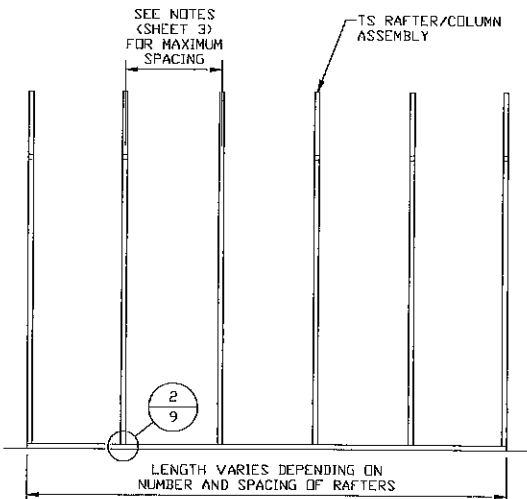
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TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAMING SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
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SHT. 5B

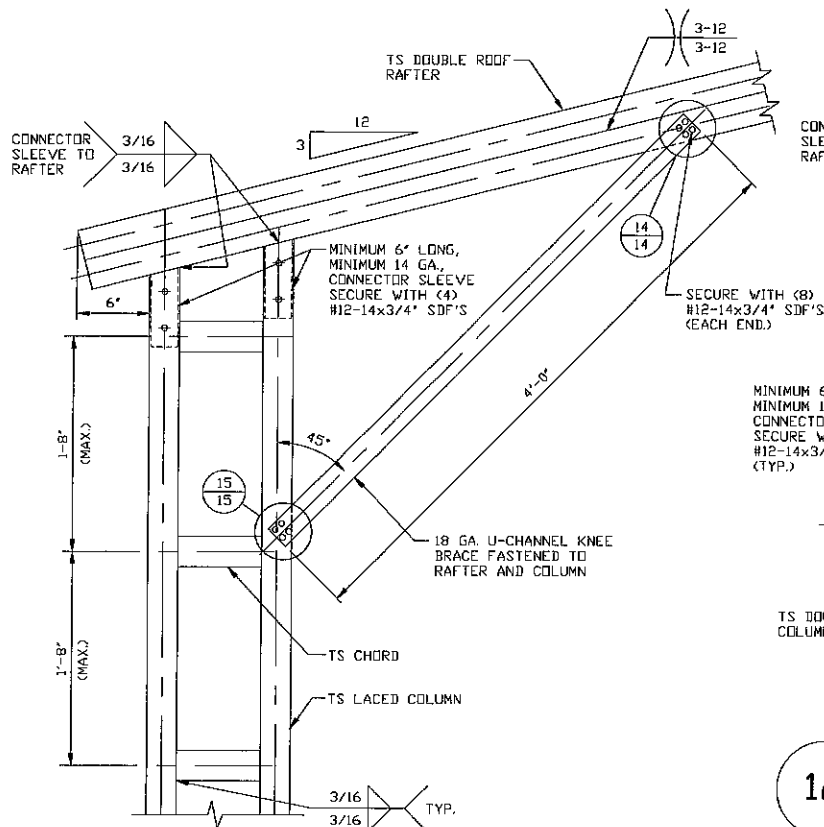
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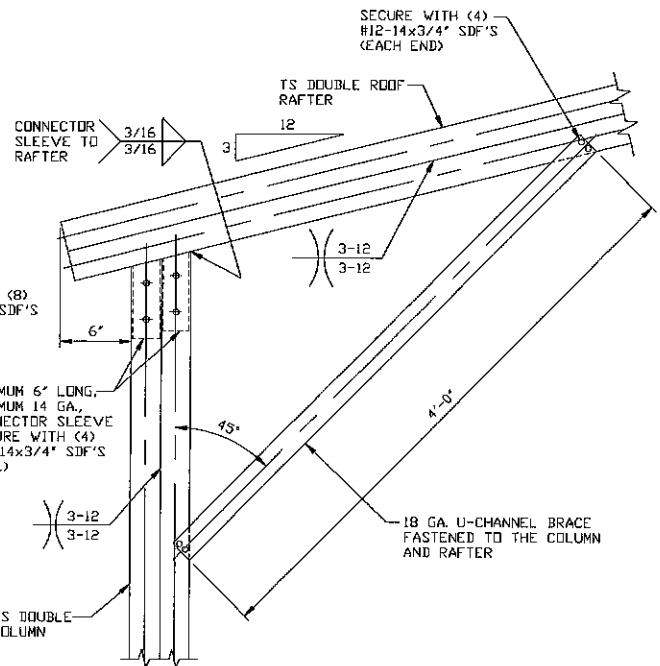
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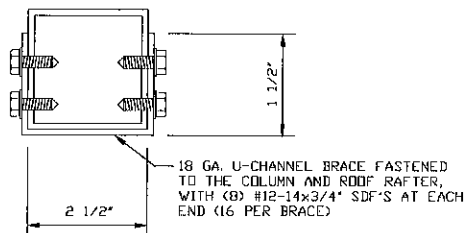
BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < TO <= 20'-0"

SCALE: NTS



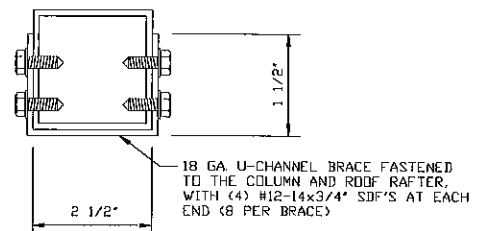
BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 9'-0" < TO <= 14'-0"

SCALE: NTS



BRACE SECTION

SCALE: NTS



BRACE SECTION

SCALE: NTS

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SHT. 6

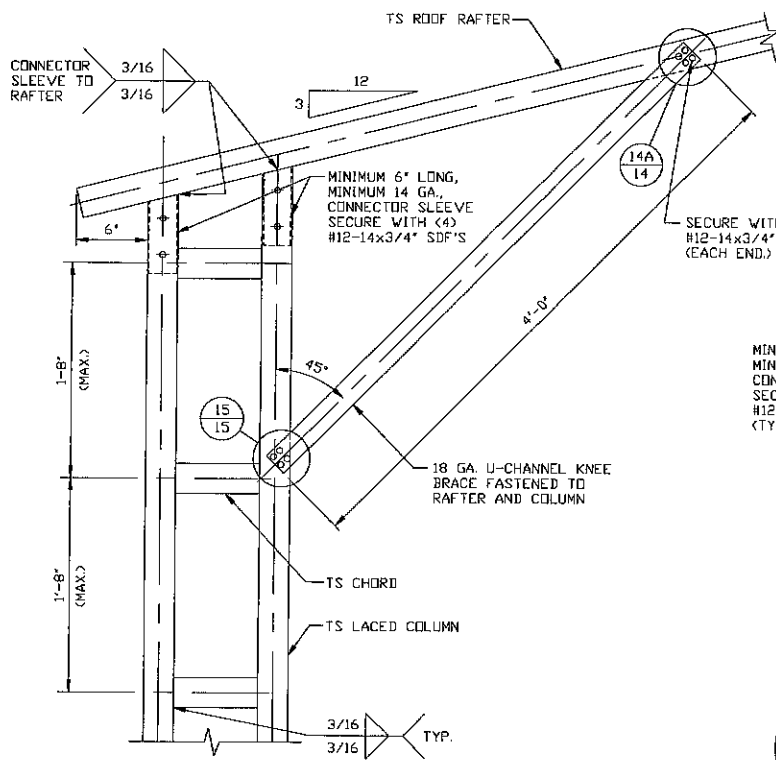
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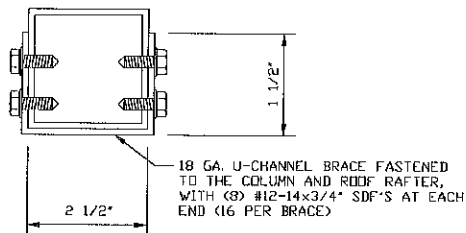
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BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < TO ≤ 20'-0"

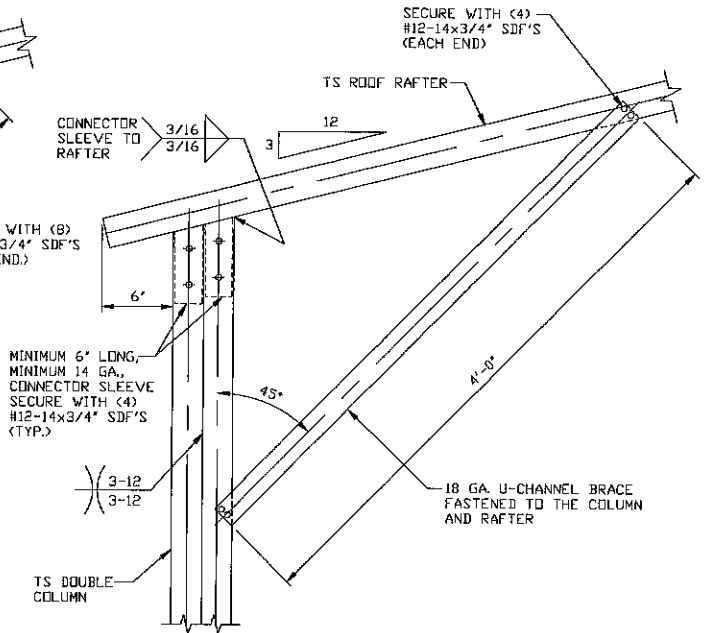
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BRACE SECTION

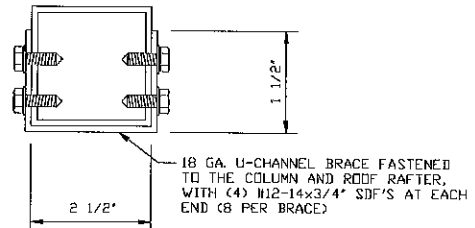
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BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 9'-0" < TO ≤ 14'-0"

1C

SCALE: NTS



BRACE SECTION

SCALE: NTS

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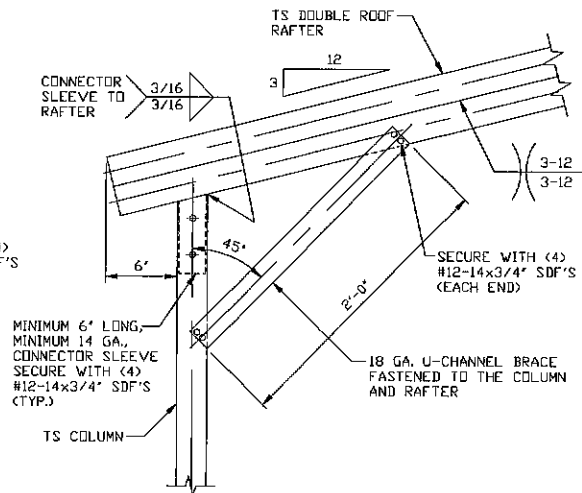
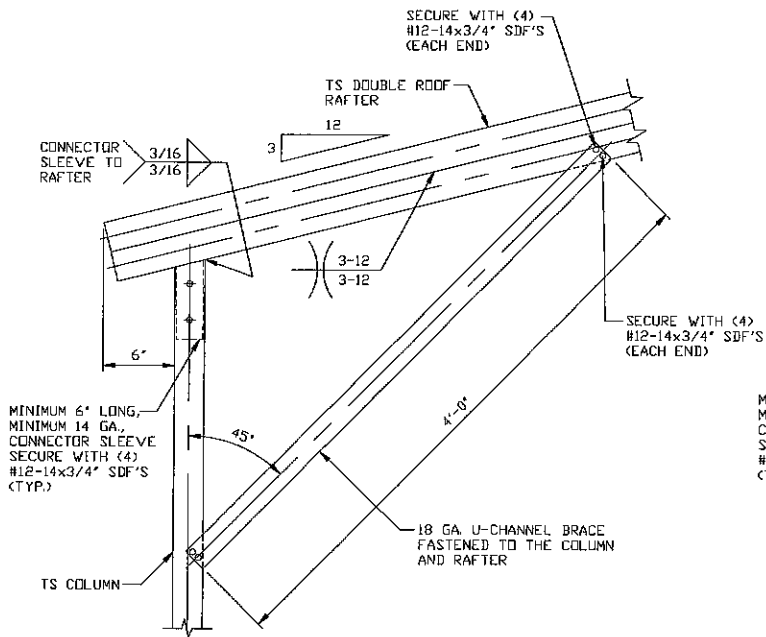
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BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL

1D

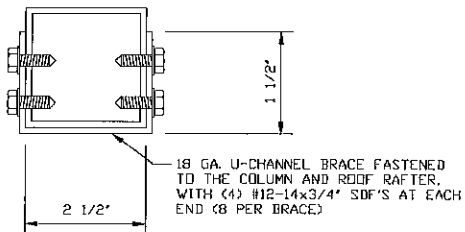
FOR HEIGHTS 8'-0" < TO <= 9'-0"

SCALE: NTS

NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 8'-0" WHEN A LEAN-TO IS ATTACHED FOR GROUND SNOW > 10 PSF. A 2'-0" LONG KNEE BRACE IS REQUIRED FOR THIS SCENARIO.

NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 12'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS <= 138 MPH AND GROUND SNOW <= 10 PSF.

MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 14'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS <= 107 MPH AND GROUND SNOW <= 10 PSF.



BRACE SECTION

SCALE: NTS

1E

BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL

FOR HEIGHTS <= 8'-0"

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SHT. 6B

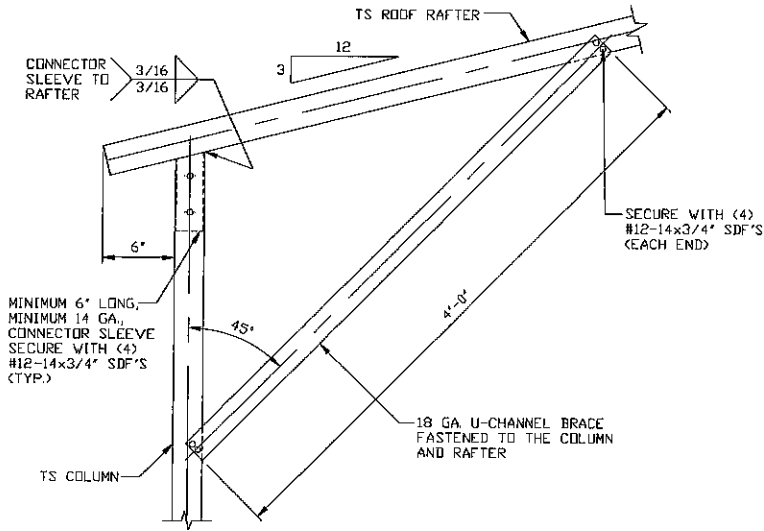
SCALE: NTS

DWG. NO: SK-3

JOB NO: 21263S

REV: 0

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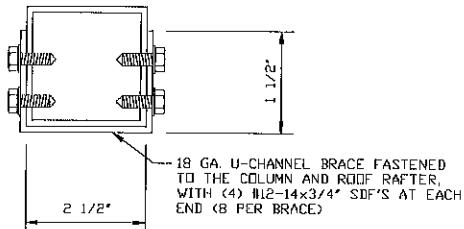
BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO <= 9'-0"

SCALE: NTS

NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 8'-0" WHEN A LEAN-TO IS ATTACHED FOR GROUND SNOW > 10 PSF. A 2'-0" LONG KNEE BRACE IS REQUIRED FOR THIS SCENARIO.

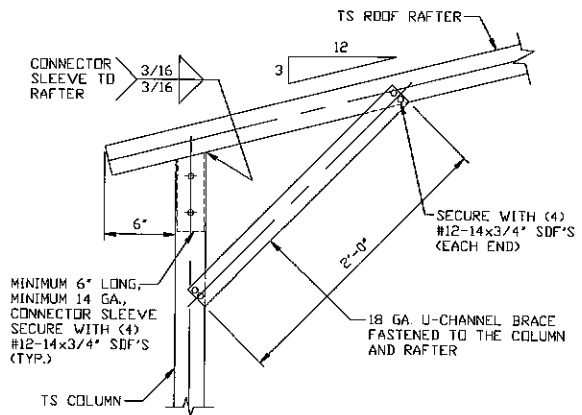
NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 12'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS <= 138 MPH AND GROUND SNOW <= 10 PSF.

MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 14'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS <= 107 MPH AND GROUND SNOW <= 10 PSF.



BRACE SECTION

SCALE: NTS



BOX EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 8'-0"

SCALE: NTS

1G

1F

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.

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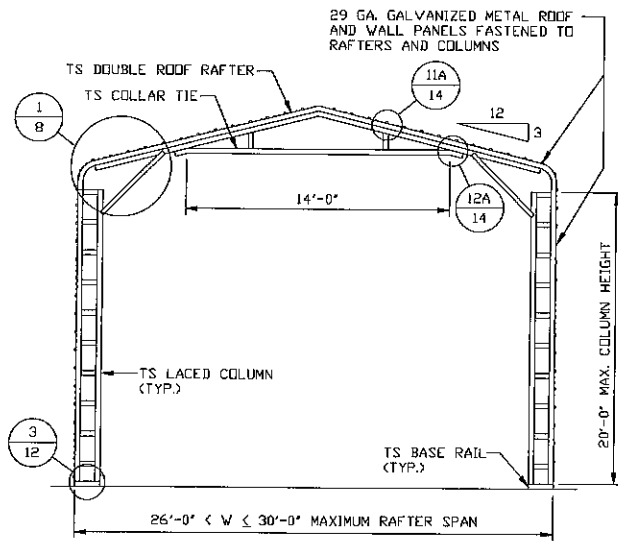
JOB NO: 21263S

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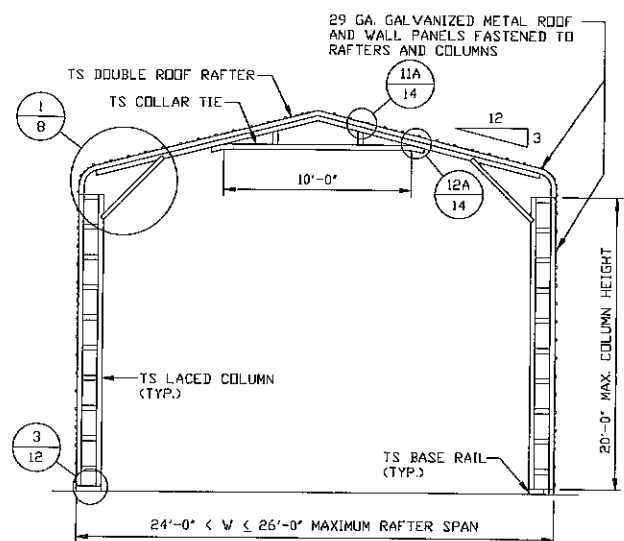
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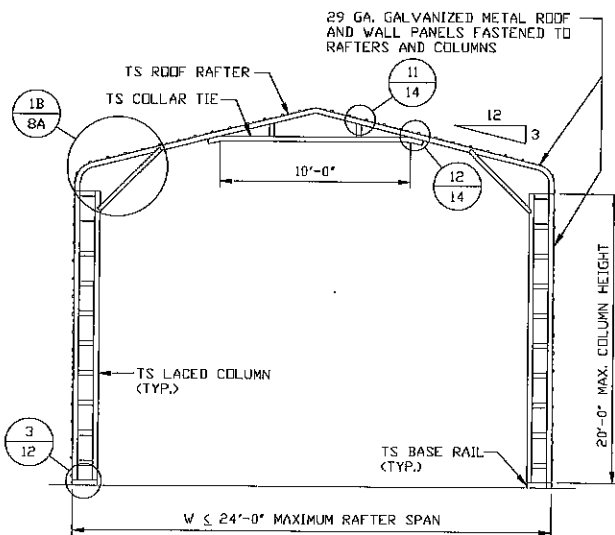
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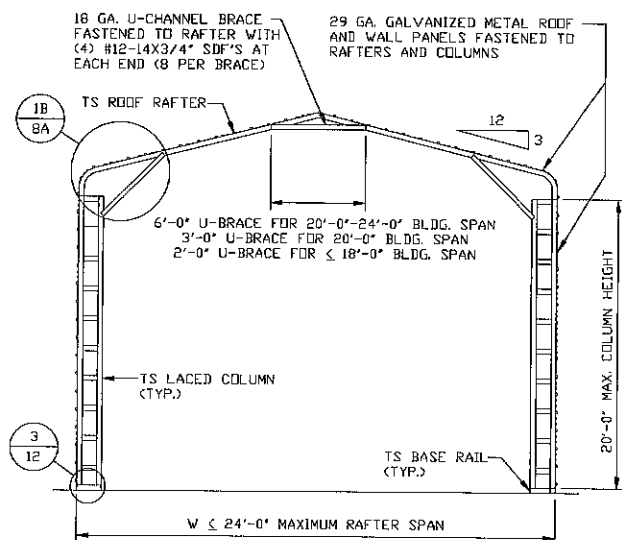
TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



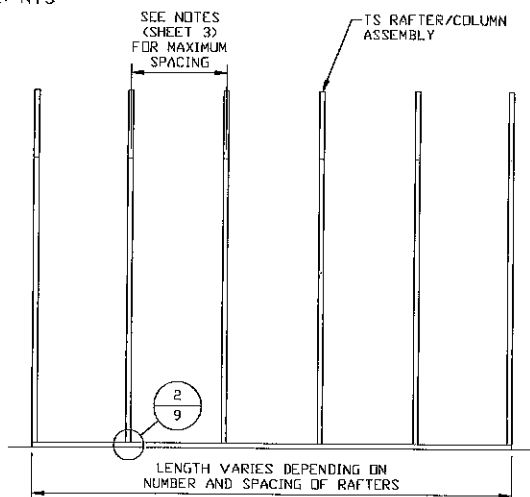
TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

**MOORE AND ASSOCIATES
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SHT. 7

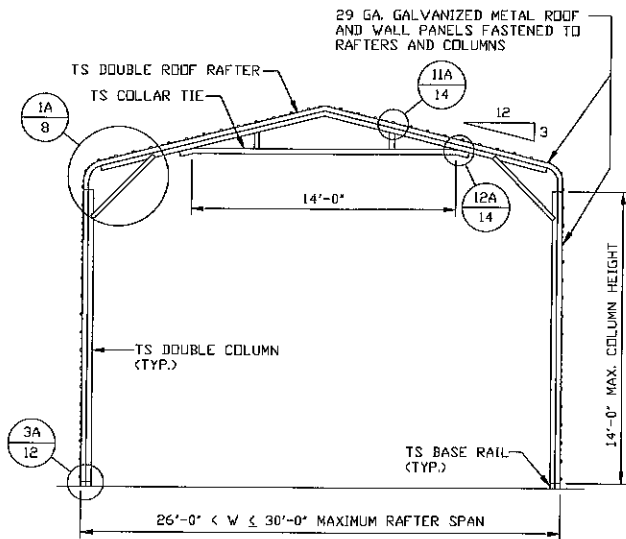
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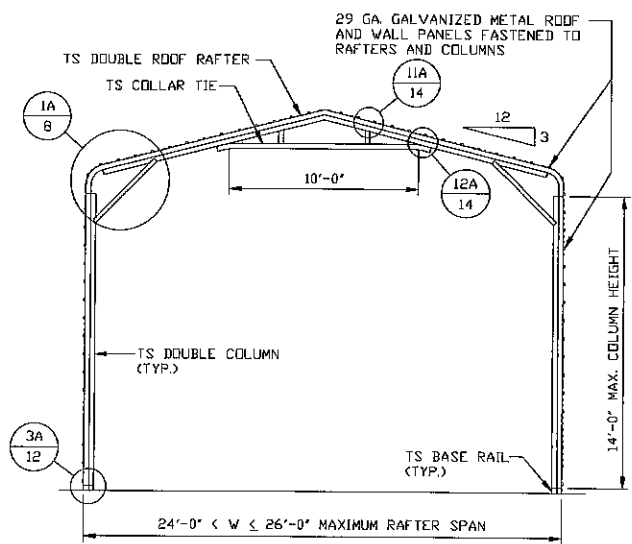
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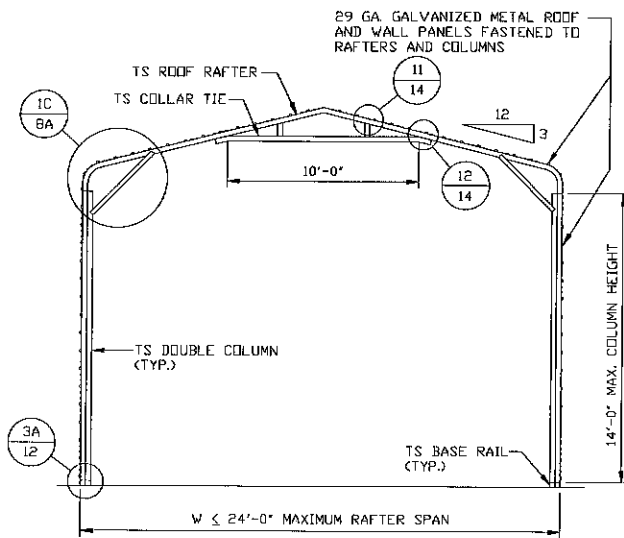
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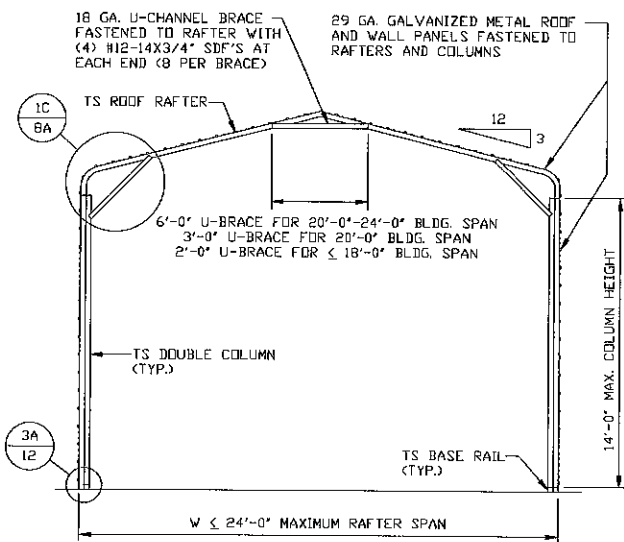
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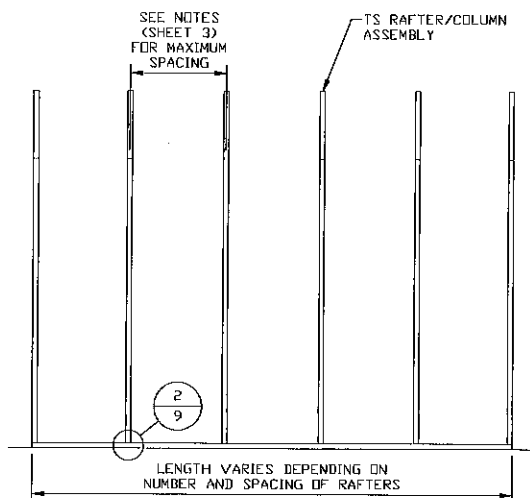
TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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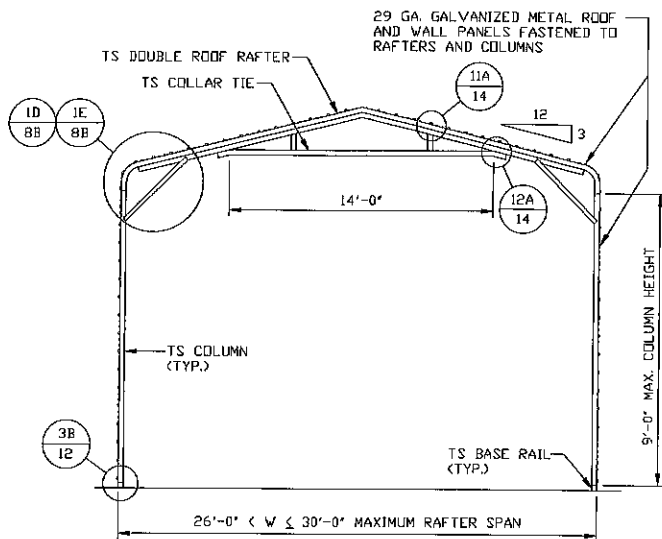
JOB NO: 21263S

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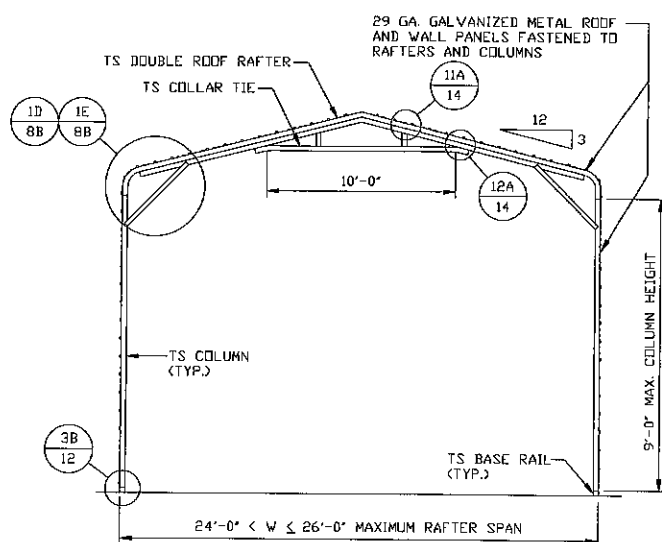
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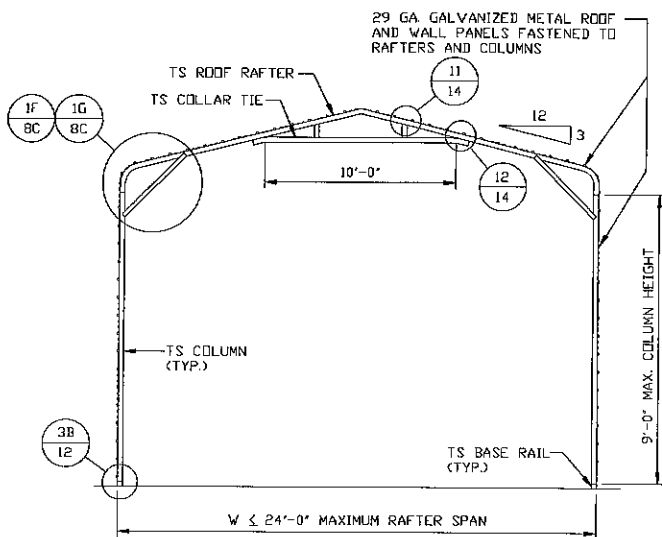
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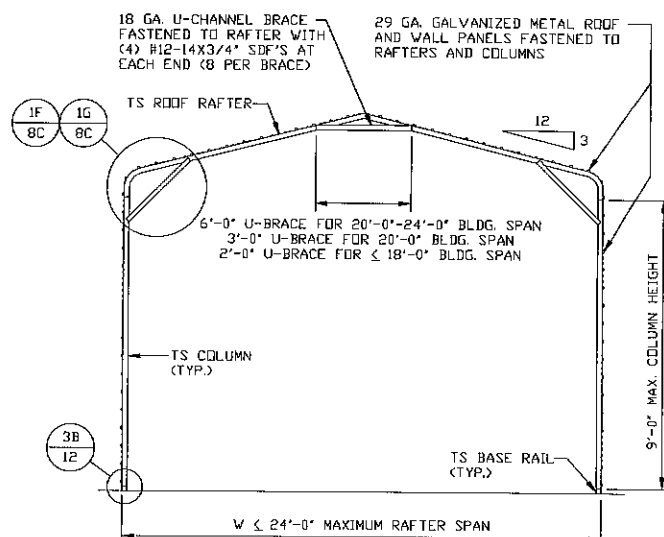
TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



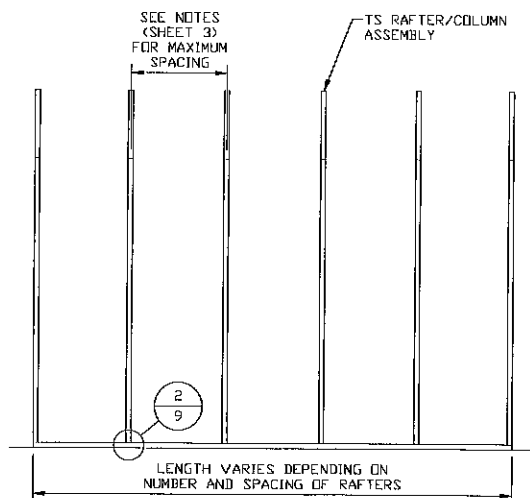
TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN FRAME SECTION
SCALE: NTS



TYPICAL RAFTER/COLUMN SIDE FRAMING SECTION
SCALE: NTS

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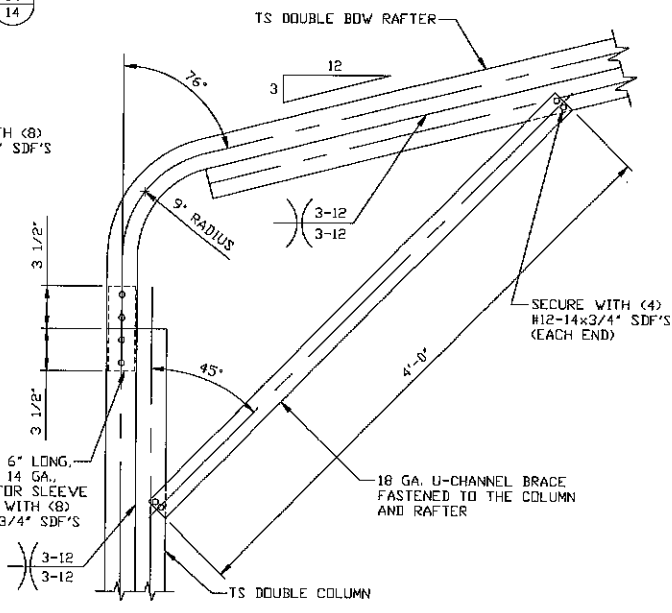
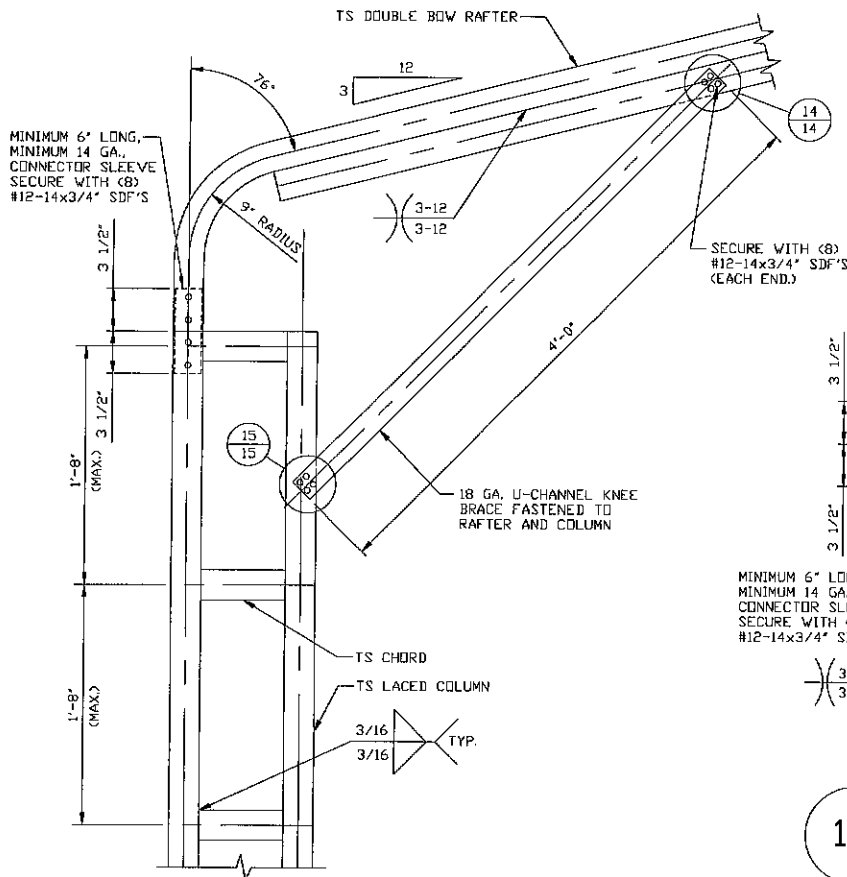
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SHT. 7B

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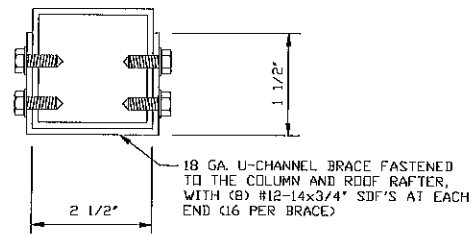
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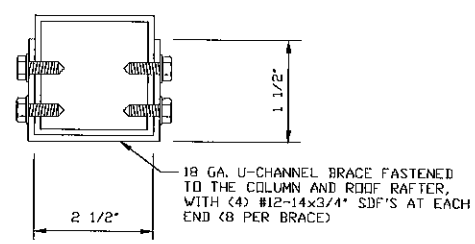


BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 9'-0" < TO <= 14'-0"
SCALE: NTS

1 BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < TO <= 20'-0"
SCALE: NTS



BRACE SECTION
SCALE: NTS



BRACE SECTION
SCALE: NTS

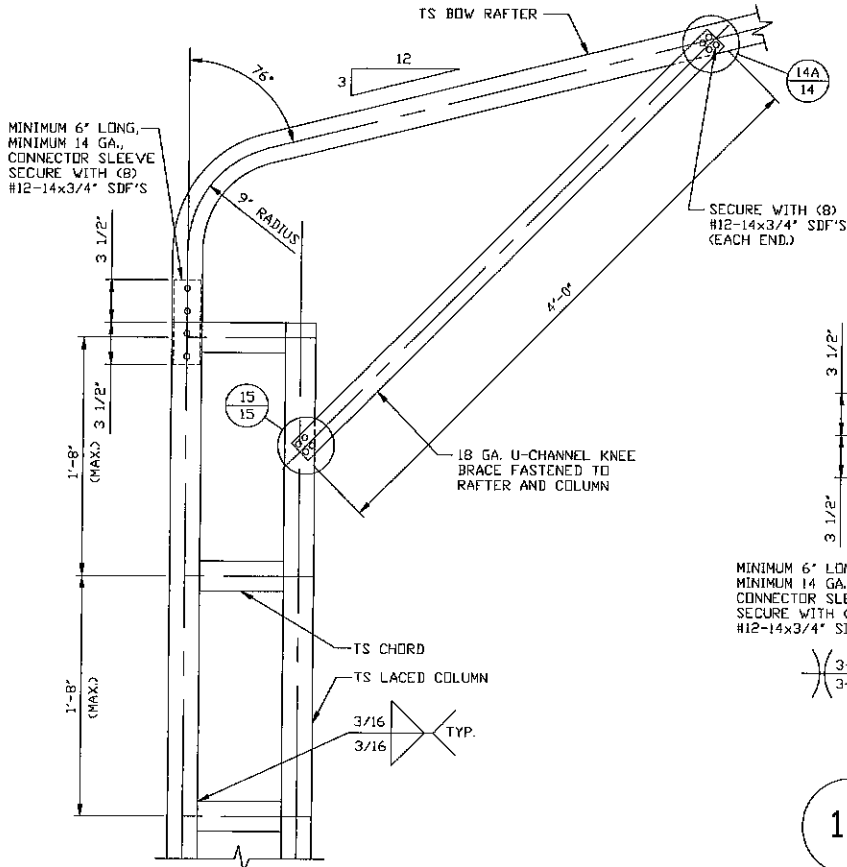
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DATE: 1-20-22 **SCALE: NTS** **JOB NO: 21263S**
SHT. 8 **DWG. NO: SK-3** **REV: 0**

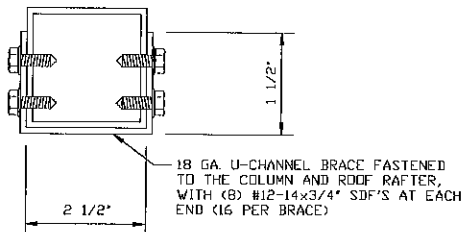
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BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 14'-0" < TO ≤ 20'-0"

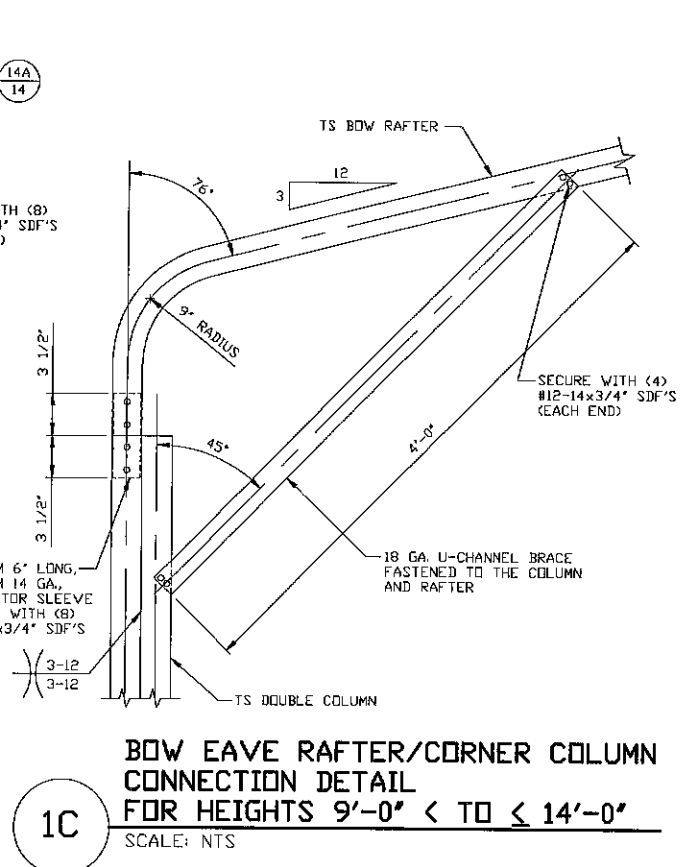
1B

SCALE: NTS



BRACE SECTION

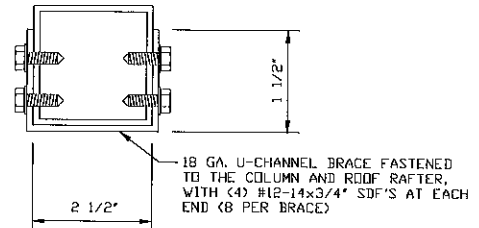
SCALE: NTS



BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 9'-0" < TO ≤ 14'-0"

1C

SCALE: NTS



BRACE SECTION

SCALE: NTS

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PROJECT MGR: WSM

CLIENT: FIVE STAR

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SCALE: NTS

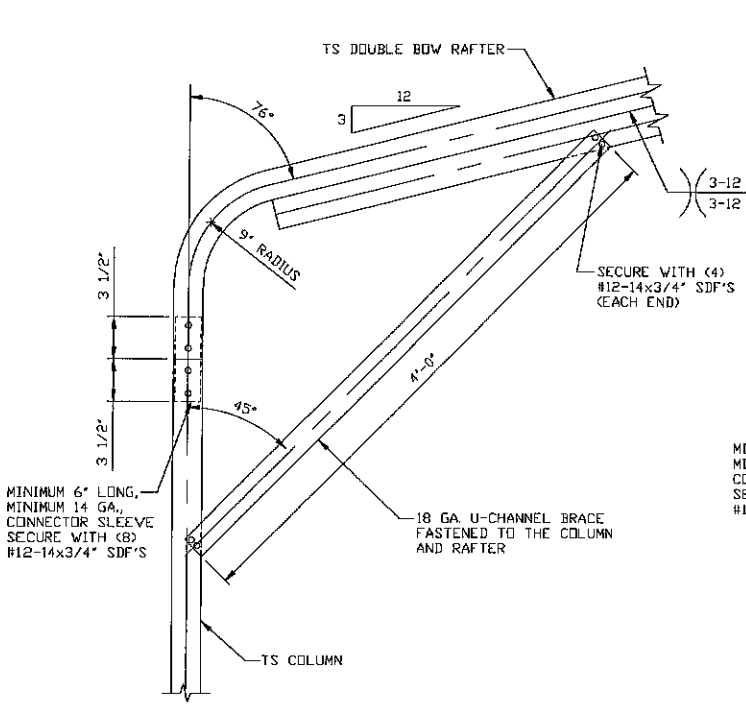
JOB NO: 21263S

SHT. 8A

DWG. NO: SK-3

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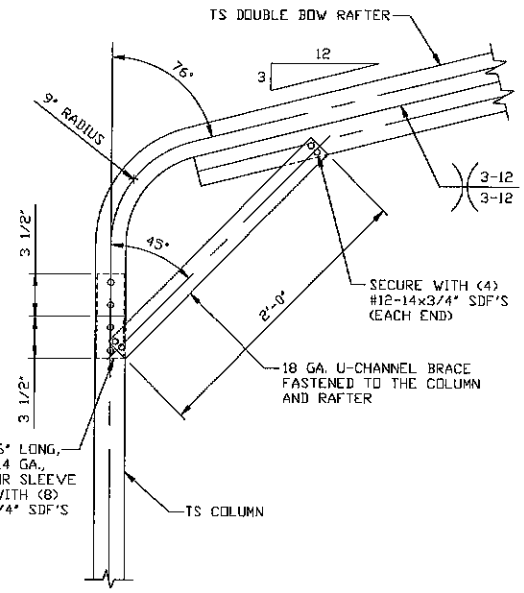


1D BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO <= 9'-0" SCALE: NTS

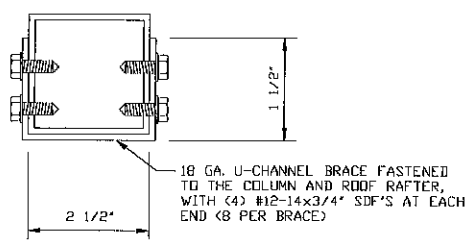
NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 8'-0" WHEN A LEAN-TO IS ATTACHED FOR GROUND SNOW > 10 PSF. A 2'-0" LONG KNEE BRACE IS REQUIRED FOR THIS SCENARIO.

NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 12'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS < 138 MPH AND GROUND SNOW < 10 PSF.

MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 14'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS < 107 MPH AND GROUND SNOW < 10 PSF.

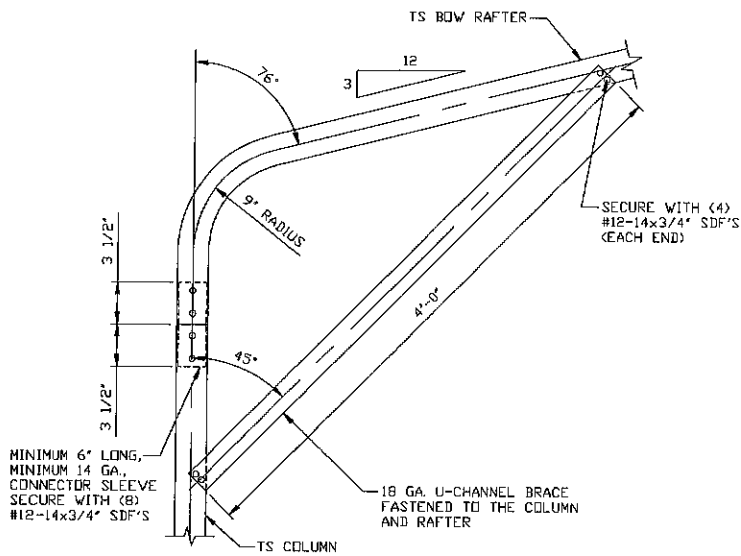


1E BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS <= 8'-0" SCALE: NTS



BRACE SECTION
SCALE: NTS

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	FIVE STAR METAL STRUCTURES, LLC P.O. BOX 1186 TOAST, NC 27049 30'-0"x20'-0" ENCLOSED STRUCTURE		
	CHECKED BY: PDH			
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	CLIENT: FIVE STAR	SHT. 08	DWG. NO: SK-3	REV: 0



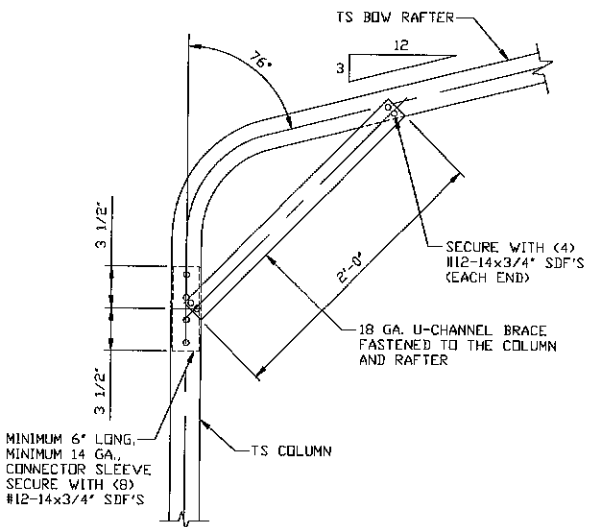
1F BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS 8'-0" < TO < 9'-0"

SCALE: NTS

NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 8'-0" WHEN A LEAN-TO IS ATTACHED FOR GROUND SNOW > 10 PSF. A 2'-0" LONG KNEE BRACE IS REQUIRED FOR THIS SCENARIO.

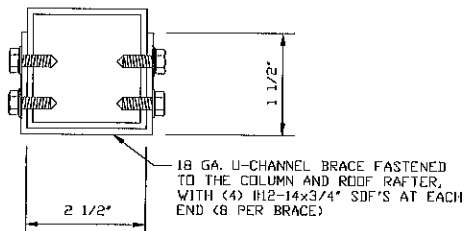
NOTE: MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 12'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS < 138 MPH AND GROUND SNOW < 10 PSF.

MAXIMUM SINGLE TUBE COLUMN HEIGHT IS 14'-0" FOR RISK CATEGORY I, WIND EXPOSURE CATEGORY B STRUCTURES WITH WIND SPEEDS < 107 MPH AND GROUND SNOW < 10 PSF.



1G BOW EAVE RAFTER/CORNER COLUMN CONNECTION DETAIL FOR HEIGHTS < 8'-0"

SCALE: NTS



BRACE SECTION

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

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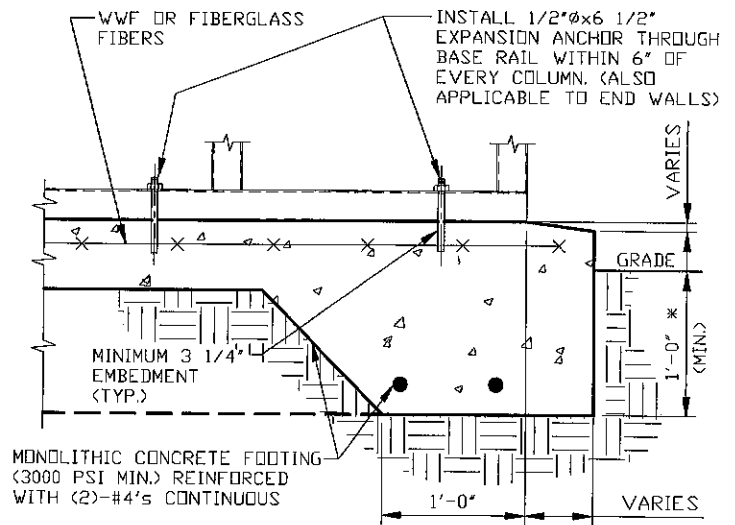
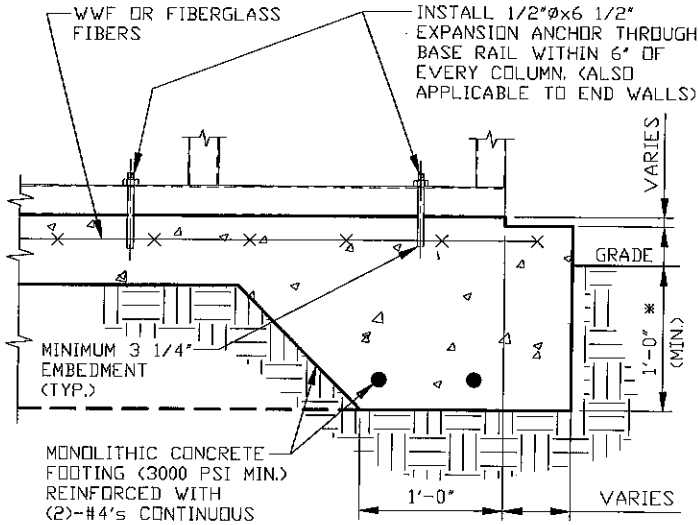
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BASE RAIL ANCHORAGE OPTIONS



2

CONCRETE MONOLITHIC SLAB BASE RAIL ANCHORAGE

SCALE: NTS
MINIMUM ANCHOR EDGE DISTANCE IS 4".
* COORDINATE WITH LOCAL BUILDING CODE
AND/OR D REGARDING MINIMUM FROST DEPTH
(LENGTH).

2A

CONCRETE SLAB BASE RAIL ANCHORAGE

SCALE: NTS
MINIMUM ANCHOR EDGE DISTANCE IS 4".
* COORDINATE WITH LOCAL BUILDING CODE
AND/OR D REGARDING MINIMUM FROST DEPTH
(LENGTH).

GENERAL NOTES

NOTE: CONCRETE MONOLITHIC SLAB DESIGN BASED ON MINIMUM
SOIL BEARING CAPACITY OF 1,500 PSF.

CONCRETE:

CONCRETE SHALL HAVE A MINIMUM SPECIFIED COMPRESSIVE
STRENGTH OF 3,000 PSI AT 28 DAYS.

COVER OVER REINFORCING STEEL:

FOR FOUNDATIONS, MINIMUM CONCRETE COVER OVER REINFORCING
BARS SHALL BE PER ACI-318:
3" IN FOUNDATIONS WHERE THE CONCRETE IS CAST AGAINST AND
PERMANENTLY IN CONTACT WITH THE EARTH OR EXPOSED TO THE
EARTH OR WEATHER, AND 1 1/2" ELSEWHERE.

REINFORCING STEEL:

THE TURNDOWN REINFORCING STEEL SHALL BE ASTM A615 GRADE
60. THE SLAB REINFORCEMENT SHALL BE WELDED WIRE FABRIC
MEETING ASTM A185 OR FIBERGLASS FIBER REINFORCEMENT.

REINFORCEMENT MAY BE BENT IN THE SHOP OR THE FIELD PROVIDED:

1. REINFORCEMENT IS BENT COLD.
2. THE DIAMETER OF THE BEND, MEASURED ON THE INSIDE OF THE
BAR, IS NOT LESS THAN SIX-BAR DIAMETERS.
3. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT
BE FIELD BENT.

HELIX ANCHOR NOTES:

1. FOR VERY DENSE AND/OR CEMENTED SANDS, COARSE GRAVEL
AND COBBLES, CALICHE, PRELOADED SILTS AND CLAYS, USE
MINIMUM (2) 4" HELICES WITH MINIMUM 30" EMBEDMENT OR
SINGLE 6" HELIX WITH MINIMUM 50" EMBEDMENT
2. FOR CORAL USE MINIMUM (2) 4" HELICES WITH MINIMUM
30" EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM
50" EMBEDMENT.
3. FOR MEDIUM DENSE COARSE SANDS, SANDY GRAVELS, VERY
STIFF SILTS, AND CLAYS USE MINIMUM (2) 4" HELICES WITH
MINIMUM 30 INCH EMBEDMENT OR SINGLE 6" HELIX WITH MINIMUM
50" EMBEDMENT.
4. FOR LOOSE TO MEDIUM DENSE SANDS, FIRM TO STIFF CLAYS AND
SILTS ALLUVIAL FILL, USE MINIMUM (2) 6" HELICES WITH MINIMUM
50" EMBEDMENT.
5. FOR VERY LOSE TO MEDIUM DENSE SANDS, FIRM TO STIFFER
CLAYS AND SILTS, ALLUVIAL FILL, USE MINIMUM (2) 8" HELICES
WITH MINIMUM 60" EMBEDMENT.

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PROJECT MGR: WSM

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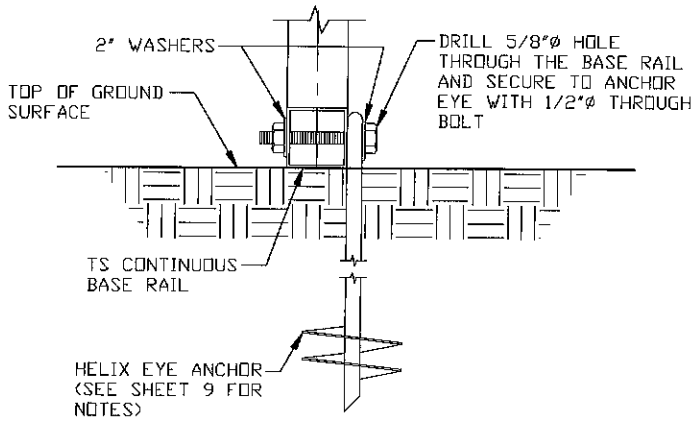
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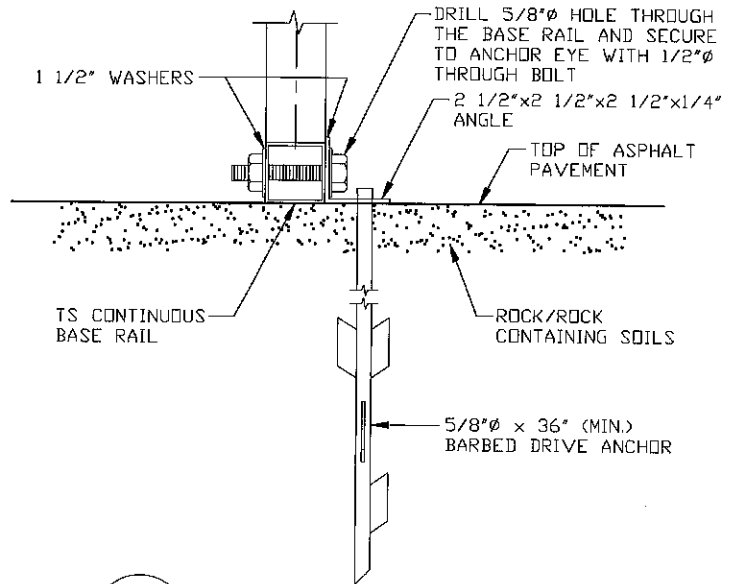
BASE RAIL ANCHORAGE OPTIONS



2B

GROUND BASE HELIX ANCHORAGE

SCALE: NTS
 * COORDINATE WITH LOCAL BUILDING CODE AND/OR D REGARDING MINIMUM FROST DEPTH (LENGTH).



2C

ASPHALT BASE ANCHORAGE

SCALE: NTS
 * COORDINATE WITH LOCAL BUILDING CODE AND/OR D REGARDING MINIMUM FROST DEPTH (LENGTH).

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SCALE: NTS

JOB NO: 21263S

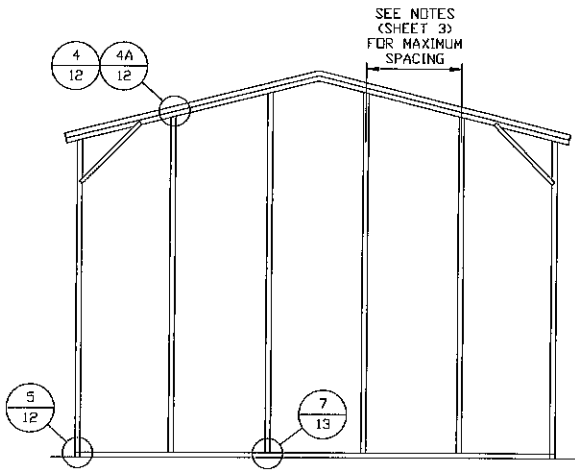
SHT. 9A

DWG. NO: SK-3

REV: 0

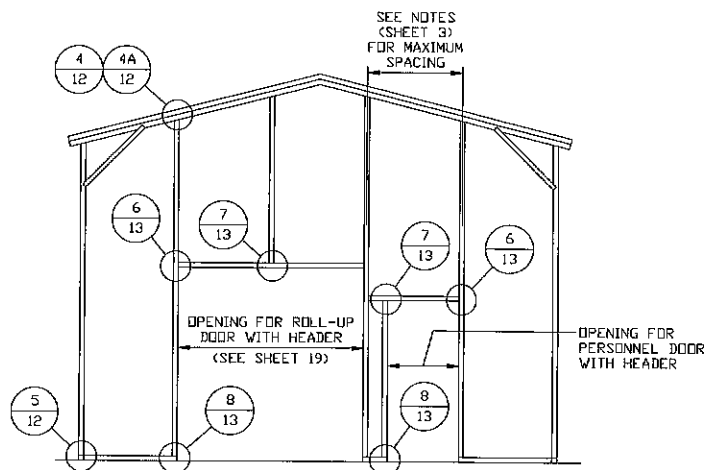
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BOX EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



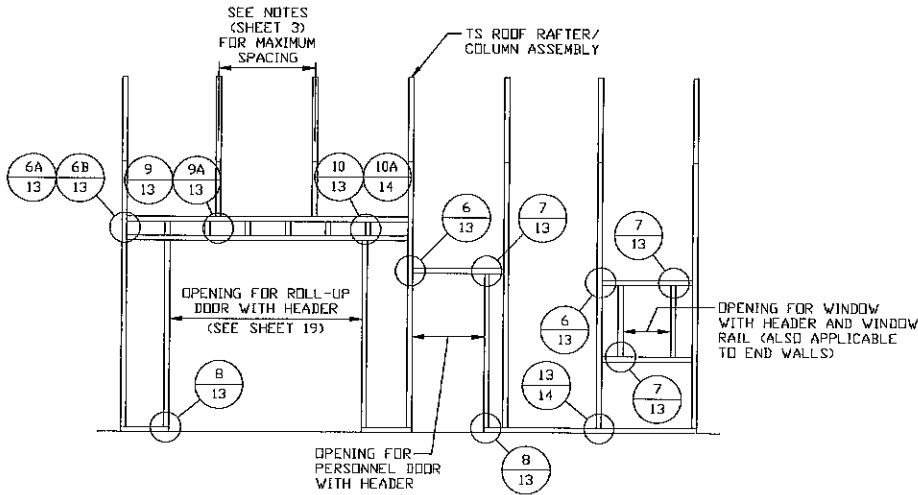
**TYPICAL BOX EAVE RAFTER
END WALL FRAMING SECTION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER END
WALL OPENINGS FRAMING SECTION**

SCALE: NTS



**TYPICAL BOX EAVE RAFTER
SIDE WALL OPENINGS FRAMING SECTION**

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

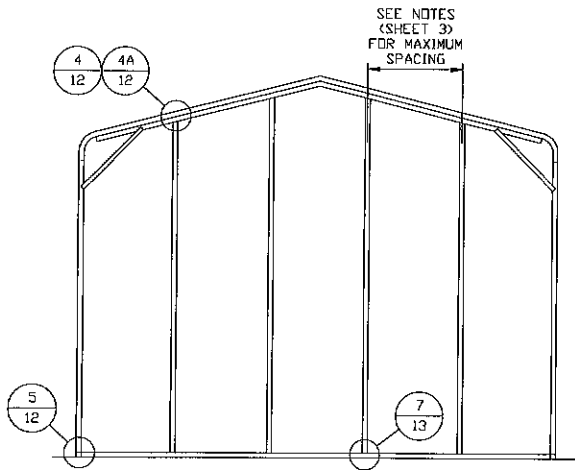
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DWG. NO: SK-3

REV: 0

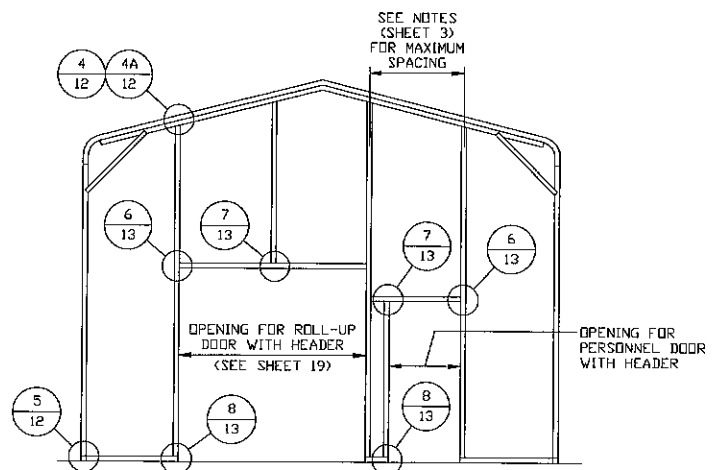
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BOW EAVE RAFTER END WALL AND SIDE WALL FRAMING SECTIONS



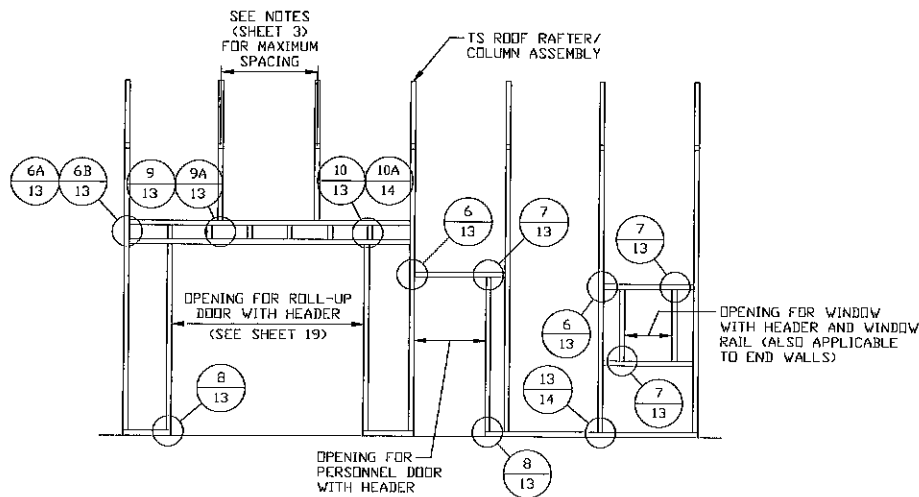
**TYPICAL BOW EAVE RAFTER
END WALL FRAMING SECTION**

SCALE: NTS



**TYPICAL BOW EAVE RAFTER END
WALL OPENINGS FRAMING SECTION**

SCALE: NTS



**TYPICAL BOW EAVE RAFTER
SIDE WALL OPENINGS FRAMING SECTION**

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

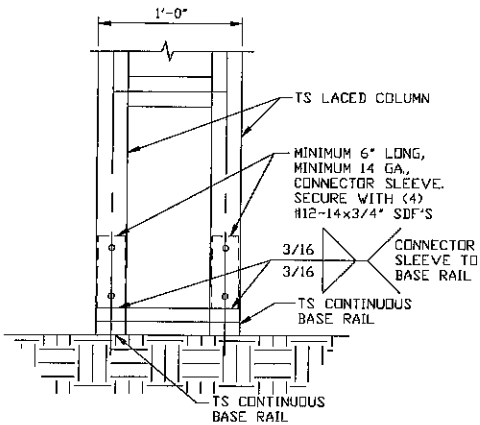
SHT. 11

DWG. NO: SK-3

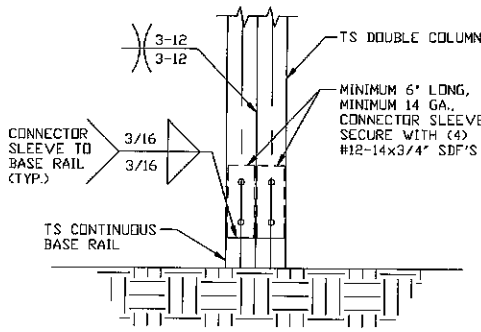
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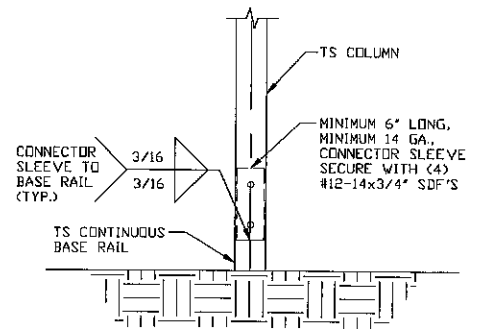
CONNECTION DETAILS



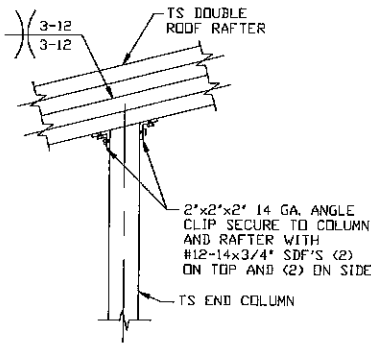
3 COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



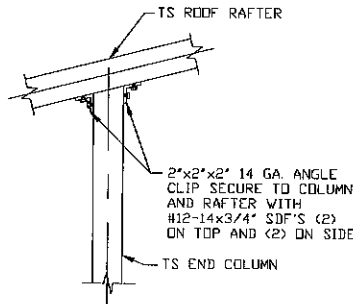
3A COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



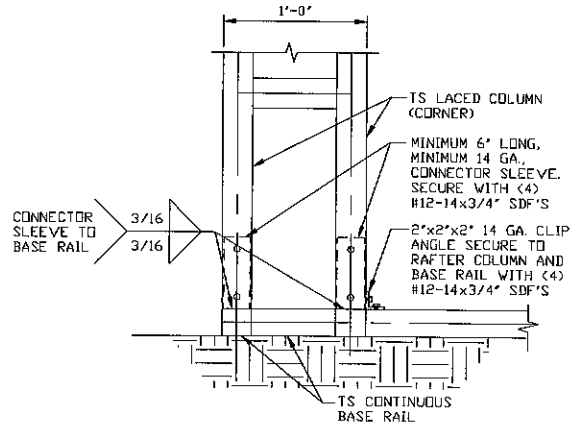
3B COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



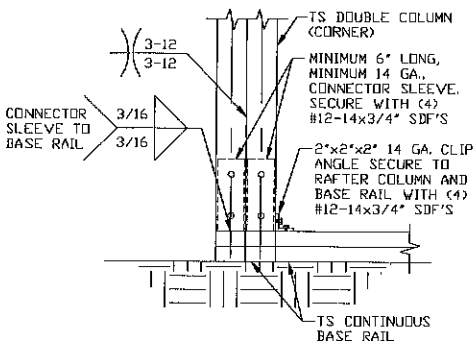
4 END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS



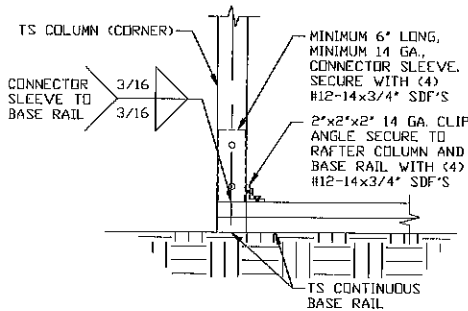
4A END COLUMN/RAFTER CONNECTION DETAIL
SCALE: NTS



5 END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



5A END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS



5B END COLUMN/BASE RAIL CONNECTION DETAIL
SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

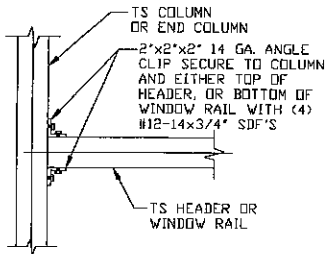
SHT. 12

DWG. NO: SK-3

REV: 0

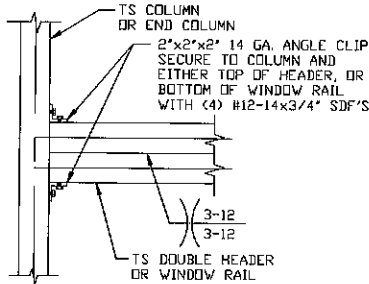
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CONNECTION DETAILS



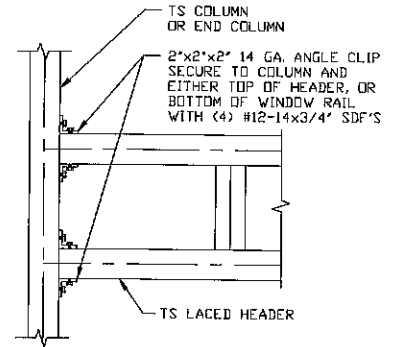
6 COLUMN OR WINDOW RAIL/WALL GIRT TO COLUMN CONNECTION DETAIL

SCALE: NTS



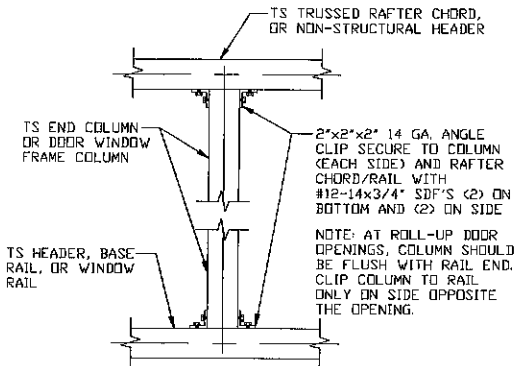
6A DOUBLE HEADER TO COLUMN CONNECTION DETAIL

SCALE: NTS



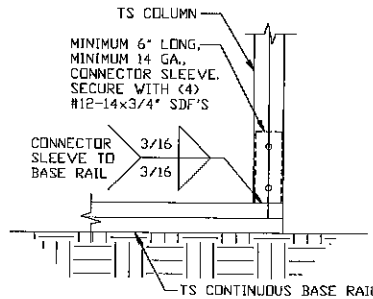
6B LACED HEADER TO COLUMN CONNECTION DETAIL

SCALE: NTS



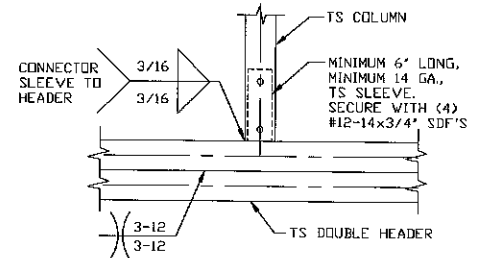
7 COLUMN TO HEADER, BASE RAIL, OR WINDOW RAIL CONNECTION DETAIL

SCALE: NTS



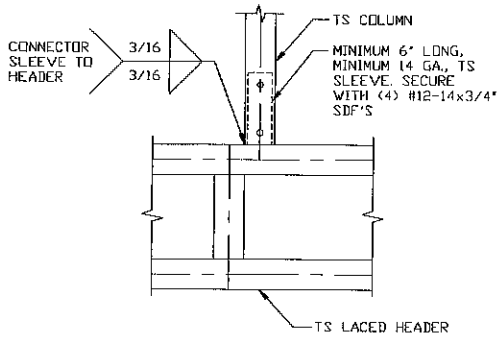
8 COLUMN/BASE RAIL CONNECTION DETAIL

SCALE: NTS



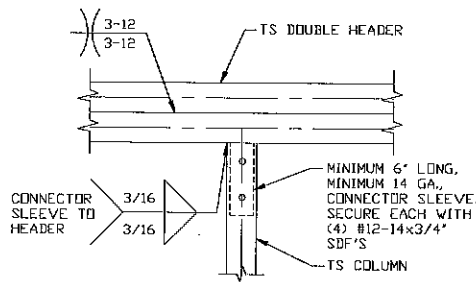
9 COLUMN/DOUBLE HEADER CONNECTION DETAIL

SCALE: NTS



9A COLUMN/LACED HEADER CONNECTION DETAIL

SCALE: NTS



10 DOUBLE HEADER/COLUMN CONNECTION DETAIL

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

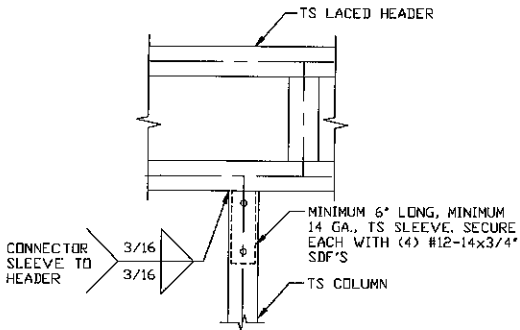
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DWG. NO: SK-3

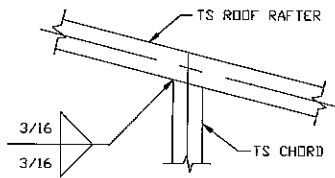
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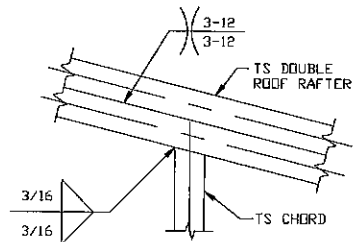
CONNECTION DETAILS



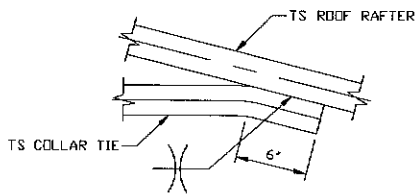
10A LACED HEADER/
COLUMN
CONNECTION DETAIL
SCALE: NTS



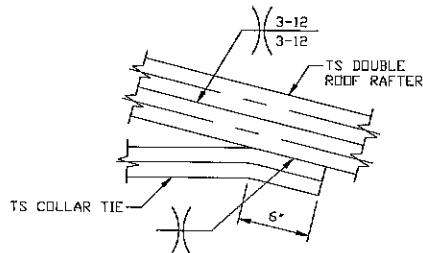
11 RAFTER TO CHORD
CONNECTION DETAIL
SCALE: NTS



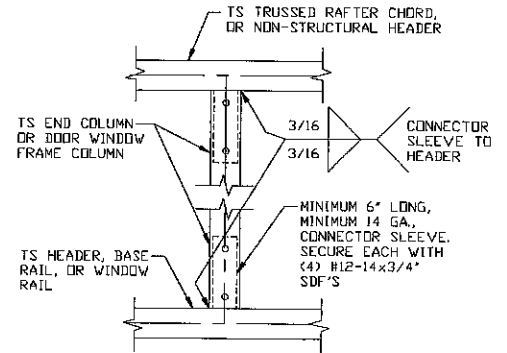
11A DOUBLE RAFTER
TO CHORD
CONNECTION DETAIL
SCALE: NTS



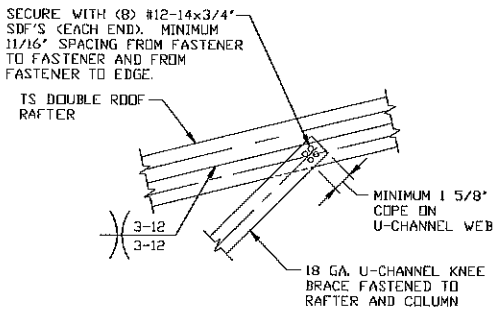
12 COLLAR TIE
CONNECTION DETAIL
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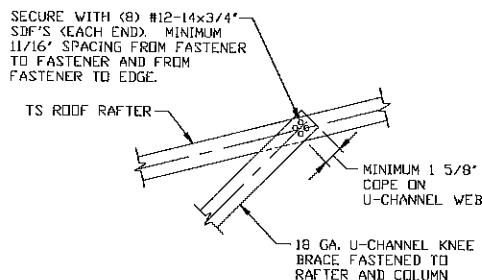
12A COLLAR TIE
CONNECTION DETAIL
SCALE: NTS



13 COLUMN TO HEADER
OR BASE RAIL
CONNECTION DETAIL
SCALE: NTS



14 U-CHANNEL TO RAFTER
CONNECTION DETAIL
SCALE: NTS



14A U-CHANNEL TO RAFTER
CONNECTION DETAIL
SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0" x 20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SHT. 14

SCALE: NTS

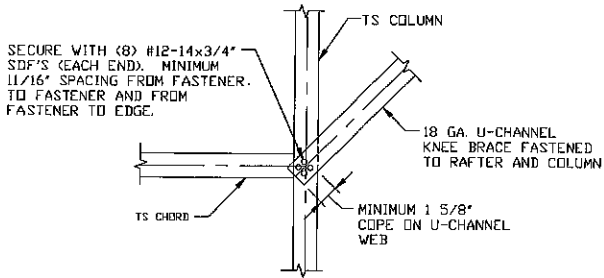
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CONNECTION DETAILS



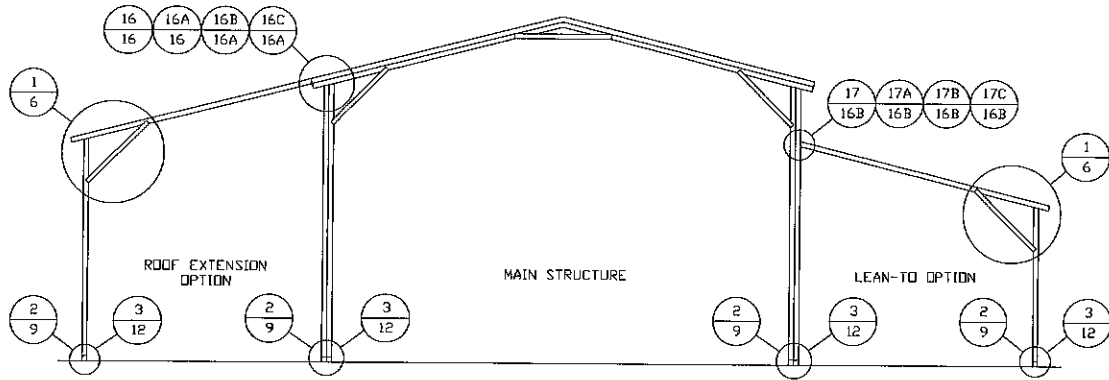
**U-CHANNEL TO COLUMN
CONNECTION DETAIL**
SCALE: NTS

15

MOORE AND ASSOCIATES ENGINEERING AND CONSULTING, INC.	DRAWN BY: JG	FIVE STAR METAL STRUCTURES, LLC P.O. BOX 1186 TOAST, NC 27049 30'-0"x20'-0" ENCLOSED STRUCTURE			
	CHECKED BY: PDH	PROJECT MGR: WSM	DATE: 1-20-22	SCALE: NTS	JOB NO: 21263S
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BOX EAVE RAFTER LEAN-TO OPTIONS

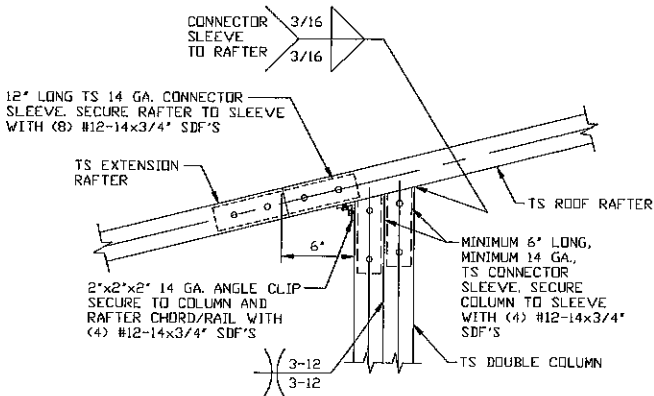
NOTE: DOUBLE TUBE RAFTER SHOWN.
PLEASE REFER TO SHEETS 5, 5A AND 5B FOR ACTUAL RAFTER SIZE.



TYPICAL BOX EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION (BOTH OPTIONS SHOWN)

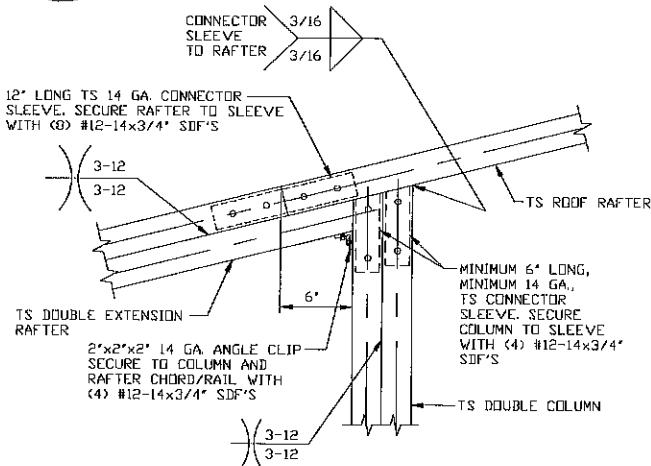
SCALE: NTS

NOTE: REFER TO SHEETS 6, 6A, 6B AND 6C FOR COLUMN HEIGHTS.



**16 SIDE EXTENSION RAFTER/COLUMN
DETAIL FOR SPANS $\leq 10'-0''$**

SCALE: NTS



**16A SIDE EXTENSION RAFTER/COLUMN
DETAIL FOR SPANS $10'-0'' < TO \leq 12'-0''$**

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

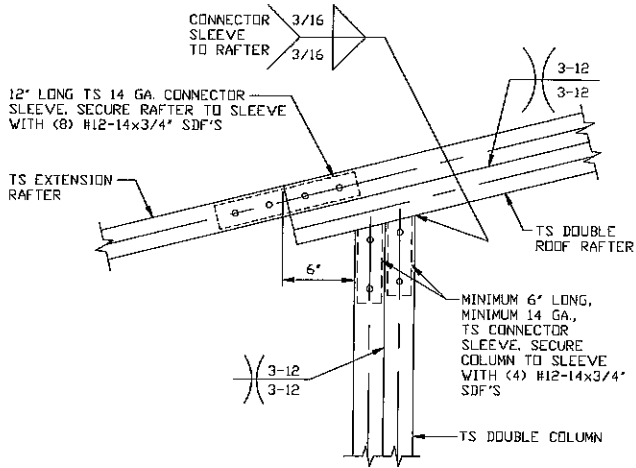
SHT. 16

DWG. NO: SK-3

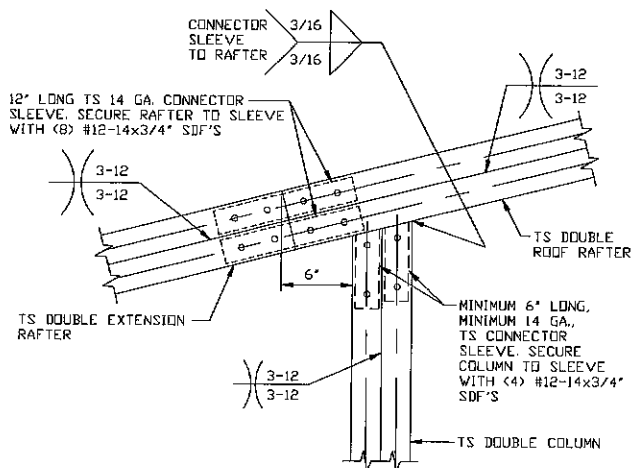
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BOX EAVE RAFTER LEAN-TO OPTIONS



16B SIDE EXTENSION RAFTER/COLUMN
DETAIL FOR SPANS $\leq 10'-0"$
SCALE: NTS



16C SIDE EXTENSION RAFTER/COLUMN
DETAIL FOR SPANS $10'-0" < TO \leq 12'-0"$
SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0" x 20'-0" ENCLOSED STRUCTURE

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PROJECT MGR: WSM

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

CLIENT: FIVE STAR

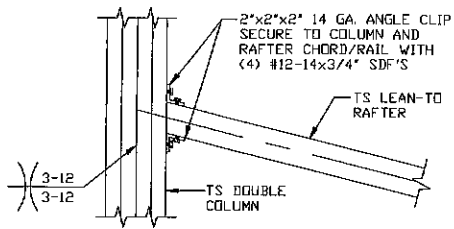
SHT. 16A

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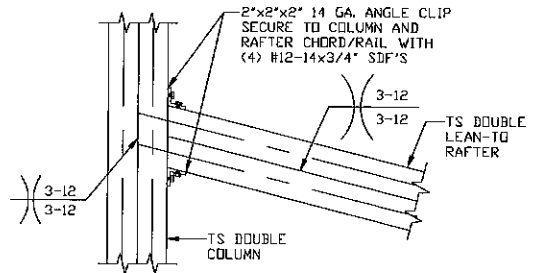
BOX EAVE RAFTER LEAN-TO OPTIONS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $\leq 10'-0''$

17

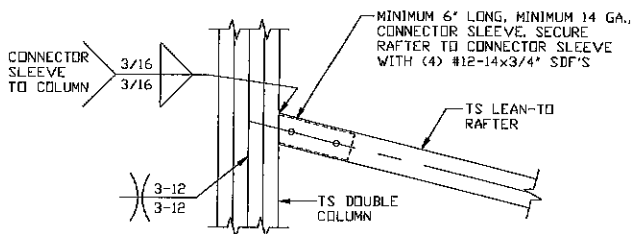
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LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $10'-0'' < TO \leq 12'-0''$

17A

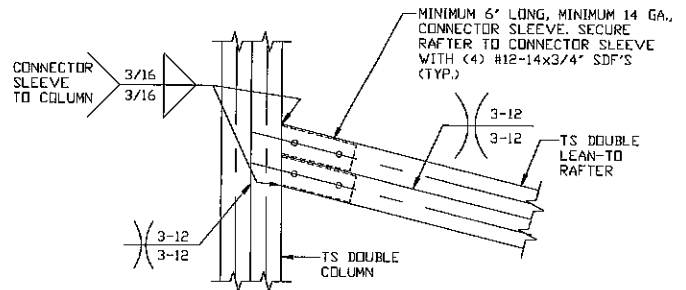
SCALE: NTS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $\leq 10'-0''$

17B

SCALE: NTS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $10'-0'' < TO \leq 12'-0''$

17C

SCALE: NTS

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DRAWN BY: JG

CHECKED BY: PDH

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FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
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JOB NO: 21263S

SHT. 16B

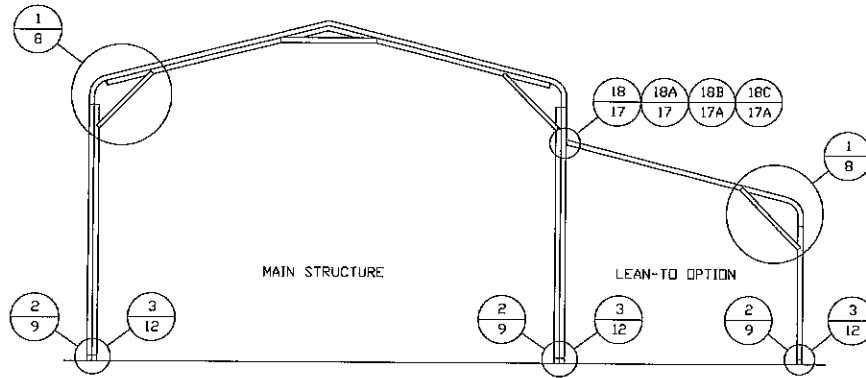
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BOW EAVE RAFTER LEAN-TO OPTIONS

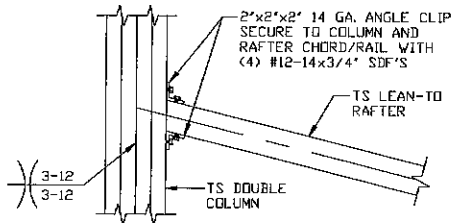
NOTE: DOUBLE TUBE RAFTER SHOWN.
PLEASE REFER TO SHEETS 7, 7A AND 7B FOR ACTUAL RAFTER SIZE.



TYPICAL BOW EAVE RAFTER LEAN-TO OPTIONS FRAMING SECTION

SCALE: NTS

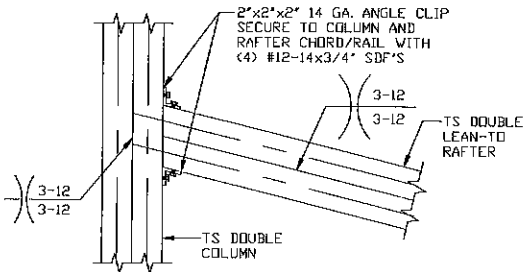
NOTE: REFER TO SHEETS 8, 8A, 8B AND 8C FOR COLUMN HEIGHTS.



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $\leq 10'-0''$

18

SCALE: NTS



LEAN-TO RAFTER TO RAFTER COLUMN CONNECTION DETAIL FOR RAFTER SPANS $10'-0'' < TO \leq 12'-0''$

18A

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SCALE: NTS

JOB NO: 21263S

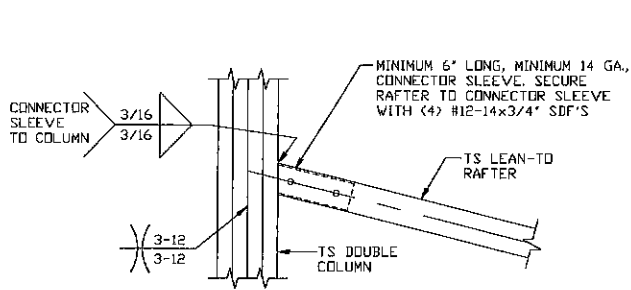
SHT. 17

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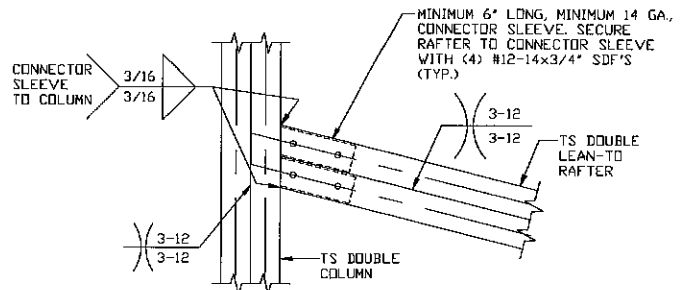
BOW EAVE RAFTER LEAN-TO OPTIONS



**LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL
FOR RAFTER SPANS $\leq 10'-0''$**

18B

SCALE: NTS



**LEAN-TO RAFTER TO RAFTER
COLUMN CONNECTION DETAIL FOR
RAFTER SPANS $10'-0'' < TO \leq 12'-0''$**

18C

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

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FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
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DATE: 1-20-22

SHT. 17A

SCALE: NTS

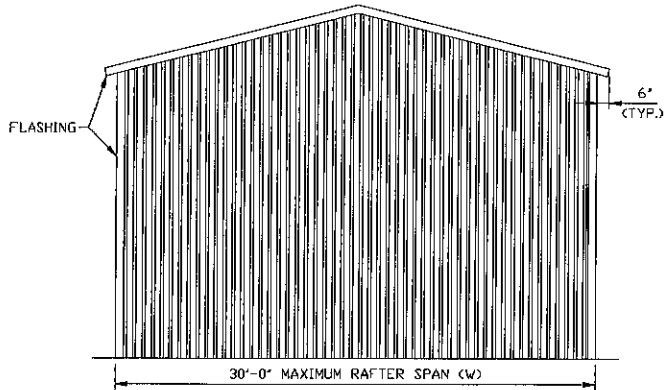
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JOB NO.: 21263S

REV.: 0

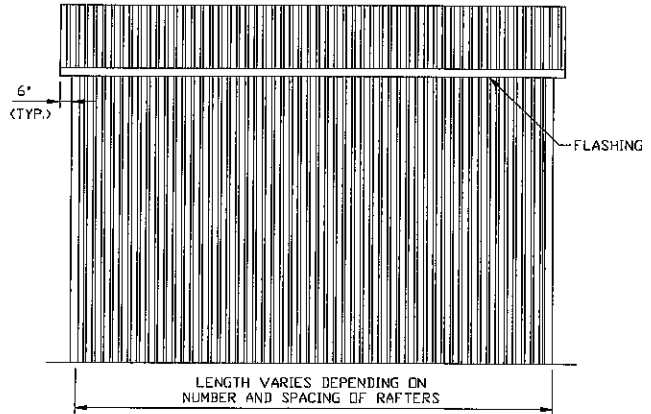
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BOX EAVE RAFTER VERTICAL ROOF/SIDING OPTION



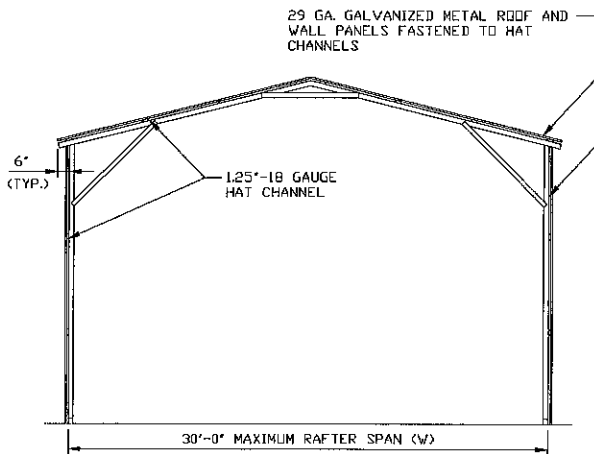
**TYPICAL END ELEVATION
VERTICAL ROOF/SIDING**

SCALE: NTS



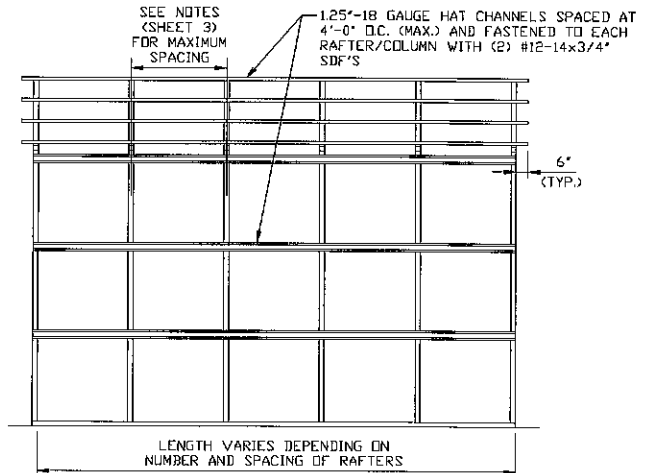
**TYPICAL SIDE ELEVATION
VERTICAL ROOF/SIDING**

SCALE: NTS



**TYPICAL SECTION VERTICAL
ROOF/SIDING OPTION**

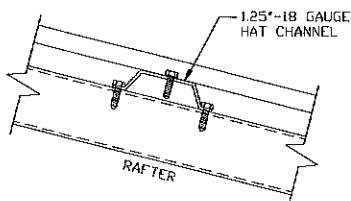
SCALE: NTS



**TYPICAL FRAMING SECTION VERTICAL
ROOF/SIDING OPTION WITH TS GIRTS**

SCALE: NTS

NOTE: TUBE STEEL (TS) IS ALLOWED TO BE USED IN LIEU
OF HAT CHANNEL FOR ROOF PURLINS AND/OR WALL
GIRTS.



PANEL ATTACHMENT

(ALTERNATE FOR VERTICAL ROOF PANELS)

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SHT. 18

SCALE: NTS

DWG. NO: SK-3

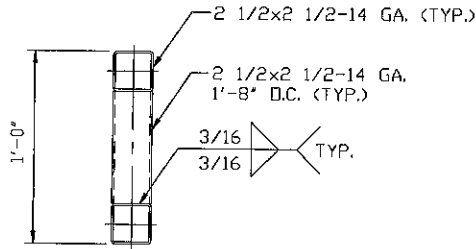
JOB NO: 21263S

REV: 0

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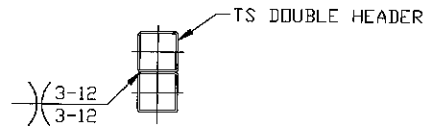
SIDE WALL HEADER OPTIONS

NOTE: HEADER DESIGN DOES NOT TAKE IN TO ACCOUNT
ADDITIONAL ROOF LOADING FROM ATTACHED LEAN-TO
STRUCTURES.



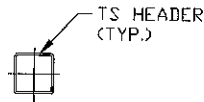
**HEADER DETAIL FOR SIDE
WALL DOOR OPENINGS
8'-0" < LENGTH ≤ 14'-0"**

SCALE: NTS



**HEADER DETAIL FOR SIDE
WALL DOOR OPENINGS
5'-0" < LENGTH ≤ 8'-0"**

SCALE: NTS

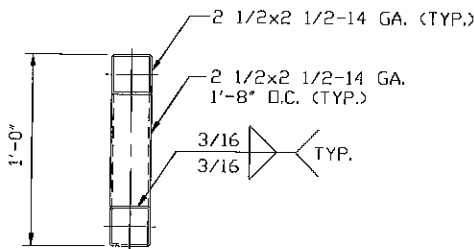


**HEADER DETAIL FOR SIDE
WALL DOOR OPENINGS ≤ 5'-0"**

SCALE: NTS

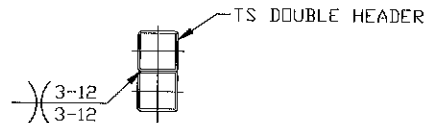
END WALL HEADER OPTIONS

NOTE: HEADER DESIGN DOES NOT TAKE IN TO ACCOUNT
ADDITIONAL ROOF LOADING FROM ATTACHED LEAN-TO
STRUCTURES.



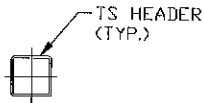
**HEADER DETAIL FOR SIDE
WALL DOOR OPENINGS
12'-0" < LENGTH ≤ 14'-0"**

SCALE: NTS



**HEADER DETAIL FOR SIDE
WALL DOOR OPENINGS
7'-0" < LENGTH ≤ 12'-0"**

SCALE: NTS



**HEADER DETAIL FOR END
WALL DOOR OPENINGS ≤ 7'-0"**

SCALE: NTS

**MOORE AND ASSOCIATES
ENGINEERING AND CONSULTING, INC.**

DRAWN BY: JG

CHECKED BY: PDH

PROJECT MGR: WSM

CLIENT: FIVE STAR

FIVE STAR METAL STRUCTURES, LLC
P.O. BOX 1186
TOAST, NC 27049
30'-0"x20'-0" ENCLOSED STRUCTURE

DATE: 1-20-22

SHT. 19

SCALE: NTS

DWG. NO: SK-3

JOB NO: 21263S

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